# CANADIAN WOODWORKER

Vol. 9 Toronto. January, 1911 No. 1

**Kirchner's Patent Hand Feed Planing Machine and General Woodworker**

This General Jointer has advantages and points of superiority not found in any other machine of its class, and which will recommend it to practical woodworkers as one of the most useful machines that has been brought out. It will plane faces and edges of boards perfectly true, make excellent glue joints, plane out of wind, bevel, chamfer, rebate, stick beadings, do either straight or circular moulding, work sash bars, tongue and grove, etc The frame is one solid and compact casting, with a large base in order to ensure perfect freedom from vibration when machine is at work. The tables are 8 ft. long. Both tables are mounted on inclined slides, and are raised and lowered independently of each other by hand wheels by simply loosening a few screws under the table. Countershafts loose pulleys 8" dia. x 4. (8" total) speed 900 revolutions per minute.

**DORKEN BROS. & CO.** Canadian Representative **Montreal, Can.**

**A Machine You Should Know About.**

Patent Fitting Tilting Saw

We want to tell you about this new machine of ours, because it's a good thing. We say it's the best on the market and we would like you to take us up and let us prove it.

**Drop Us a Card**

**THE SOUTHAMPTON IRON WORKS**
**Southampton, Ont.**

From

**Nova Scotia to British Columbia**

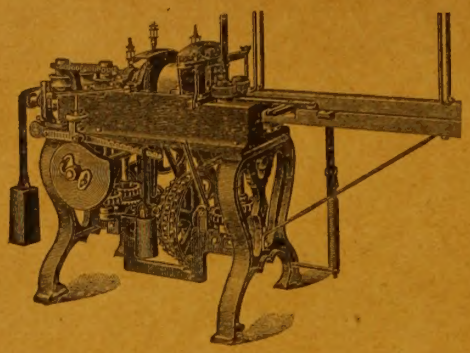
**Burton's** Saws are to be found in Mills, large and small.

We can tell you, or show you, good reasons, for this wide-spread sale.

Ask the Millman down street what he thinks of our saws, and if he is a user, he'll prove to be our best salesman.

Let us send you some facts about saws in general, and Burton's Saws in particular.

**THE A. J. BURTON SAW CO. Limited, VANCOUVER, B.C.**



# This is a Cut of the No. 10 Ober Lathe

for turning Fork, Hoe, Rake, Mop, Broom and Ice Hook Handles, Pike Poles, Tent Poles, Trolley Poles, Curtain Poles, Chair Bows, Dowels, Rods and Similar Work.

**Simple—Strong—Durable—Economica**

We also manufacture other Lathes for making Spokes, Handles and Variety Work; Sanders, Shapers, Boring and Chucking Machines, etc., etc.

Complete Catalogue and Price List Free.

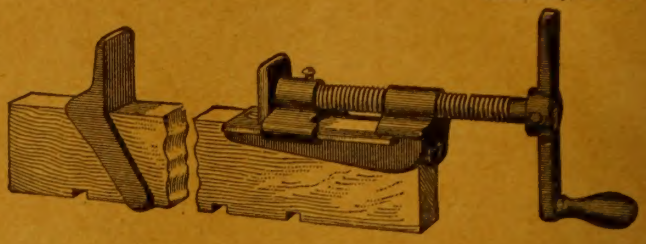
## The Ober Mfg. Co.

**31 Bell St., CHAGRIN FALLS, O., U. S. A.**

# Clamp Fixtures, Per Set, 50 Cents

Gentlemen :—We are pleased to state that the 25 dozen Patent Maleable Camp Fixtures which we bought of you a little over a year ago are giving excellent service. We are well satisfied with them and shall be pleased to remember you whenever we want anything additional in this line.

Yours truly, CURTIS SASH & DOOR CO.,
Sioux City, Iowa.



No. 1

STEEL BAR CLAMPS

The bars of our STEEL CLAMPS are especially tempered and guaranteed indestructable. Screws and fitting quickest possible action and made to stand any service or abuse. Don't fail to test sample of this clamp before you buy elsewhere.

**Over 26,000 of our Steel Rack Guaranteed Vices**

now in use. We solicit the priviege of submitting samples of these specialties on terms that will be attractive to rated firms. Write for list and prices.

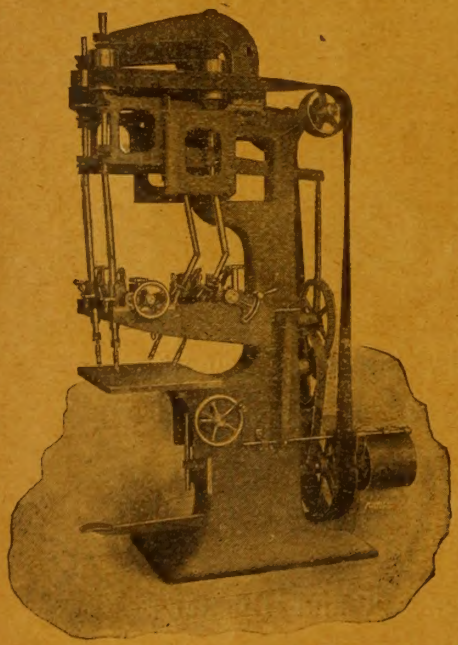
RAPID-ACTING WOODWORKER'S VISE No. 3

**E. H. Sheldon & Co., 326 N. May St., Chicago, Ills**

**Four Spindle**

# Universal Boring Machine

**With Power Feed**



**Bores Four Leg-Holes at One Operation in 900 to 1000 Chair Seats an Hour**

A wonderful labor saver, at the same time insuring uniformity in distances apart and in angles of holes.

For work requiring only one, two or three holes, it also gives better results and saves time and labor.

With its simple construction and power feed, it is easy to operate and requires no especial skill.

***A machine for correct boring at a big reduction in cost. May I mail you full description?***

## J. M. NASH 842-848 30th St. Milwaukee, Wis.

***Also Sanders for Round Work, Bent Work and Veneered Rolls.***

Holmes 102 Lightning Cut-off Saw

# A Saw with Reputation

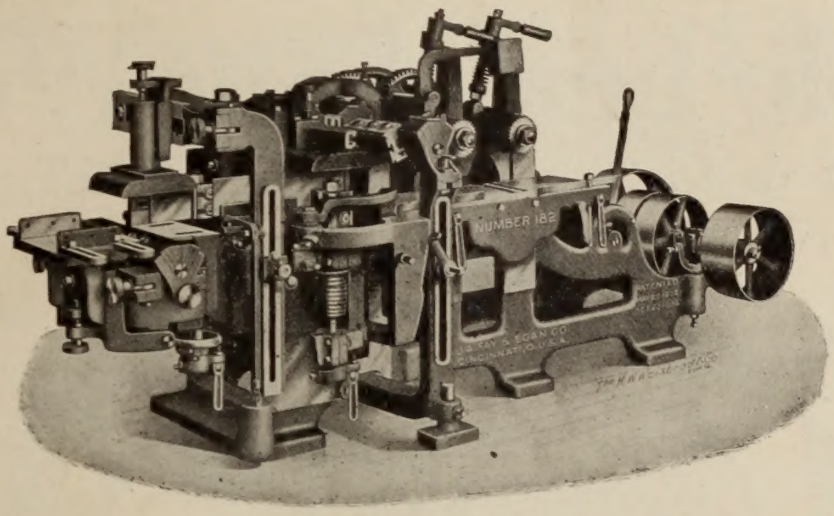
We show here a simple and effective machine for sawing accurately and rapidly any kind of lumber used in sash, door, box, furniture, and other woodworking shops. The travel of the saw can be instantly shortened when cutting narrow lumber and the adjustable saw guard insures absolute safety to the operator. Bolts are provided for bolting wooden tables on either side of the machine.

The machine is made to be bolted from above or below also with stationary and adjustable gauges.

Write for Catalogue and Prices — The cost will surprise you

## E. & B. Holmes Machinery Co.

**47 Chicago St., :: :: BUFFALO, N.Y.**




No. 182 Four Side Molder 8-9-10″ wide and 15″ thick

# Molder Value is Measured

BY THE

# Quality and Quantity of Output

THE best results can only be attained by using the best Molder the market affords—a molder that is as near perfect as human ingenuity can make it—a molder that has stood the test.

We have been building molders for eighty years—you have the reputation and guarantee of the world's largest manufacturers of high duty woodworking machinery back of the assertion that the latest models of Fay & Egan Molders are in advance of any other make now on the market. You also have the verdict of the most discriminating buyers, such as the Otis Elevator Co.; Pullman Co.; Illinois Central Ry.; Santa Fe System; International Harvester Co.; and many others, who have bought and still continue to buy our Molders in preference over all others.

LASTLY—our molder catalog goes into the details of our complete line of high duty molders—showing that our machines have all the points claimed by other manufacturers, many features exclusive in our machine and that built-in quality that is absolutely necessary in making a good molder. This catalog gladly mailed free of charge upon receipt of your request.

## J. A. FAY & EGAN CO., CINCINNATI, OHIO

**153-173 West Front Street,**

**The World's Standards for Woodworking Machinery**

**Sales Offices:**

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Equitable Bldg., 120 Broadway

CHICAGO, ILL.
625 Commercial Nat. Bank Bldg.

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Indiana.

VANCOUVER, B.C.
532 Pender St. West

DETROIT, MICH.
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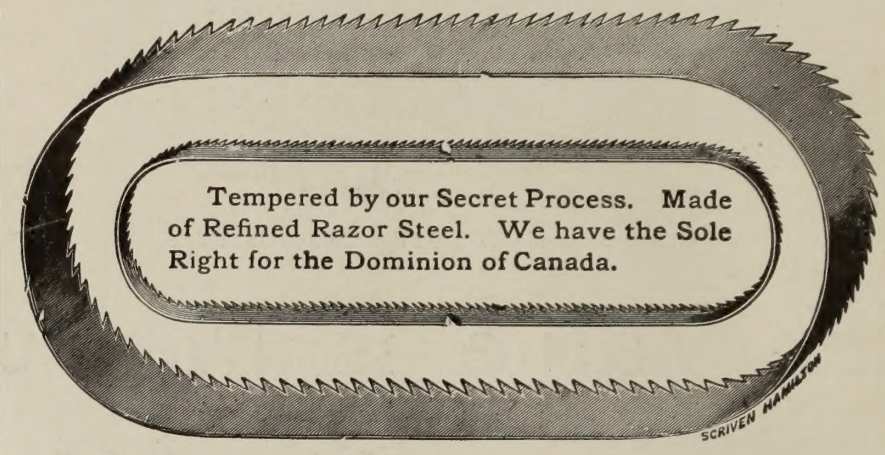
# Maple Leaf Saw Works

**Shurly & Dietrich, Props.** **GALT, Ont.**

LARGEST SAW MANUFACTURERS UNDER THE BRITISH FLAG

We manufacture Circular Saws Gang Saws Mill Saws Band Saws Cross Cut Saws Buck Saws Saw Setts etc.



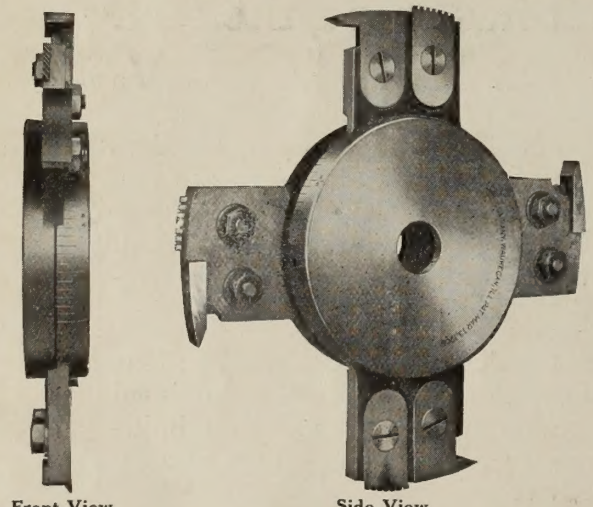

We manufacture high-grade **Band Saws** of all Widths and Lengths

These Saws are made of Refined Razor Steel, and Tempered by our Secret Process; for Fine Finish and Temper are not excelled.

**"Maple Leaf" Saws** are the best-tempered saws made

We are the only manufacturers in the world who export Saws in large quantities to the United States

## A Matter of Adjustment



Front View Side View

**THE Hall Adjustable Dado or Grooving Head**

adjusts to the fineness of 1/64 of an inch and can be adjusted for any size groove within the scope of the Cutter in half a minute.

These adjustable features are peculier to the "Hall" and are entirely novel

There is no manipulation of bolts, screws, washers or nuts in making the adjustment, which means there is nothing to work loose.

Our Booklet C. 2 will prove interesting reading and will give you a full description of the Hall Cutter-head suited to your needs.

**The Pamphlet is free—just ask.**

**Write us for prices on other machinery**

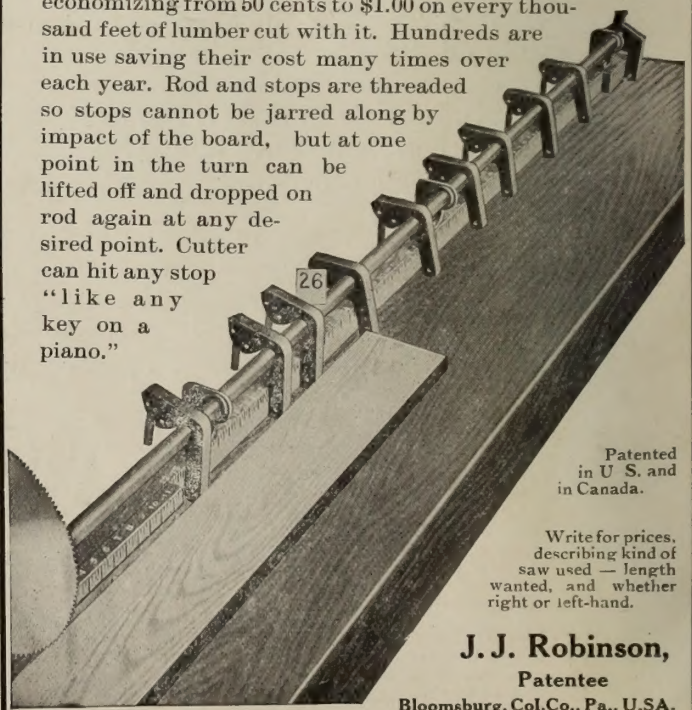
**Hall Cutter-Head Company, Incorporated**

**Factory, Waukegan, Illinois 303 Trude Building, CHICAGO, U.S.A.**

LIVE AGENT WANTED

## Robinson Improved Saw Gage

**Made in Canada**—Saving Duty and U. S. Freights for Canadian Purchasers. Sent on 30 days Free Trial. If not entirely satisfactory, send it back at our expense. This Gage will save Time, Material and Mistakes, thus economizing from 50 cents to $1.00 on every thousand feet of lumber cut with it. Hundreds are in use saving their cost many times over each year. Rod and stops are threaded so stops cannot be jarred along by impact of the board, but at one point in the turn can be lifted off and dropped on rod again at any desired point. Cutter can hit any stop "like any key on a piano."




Patented in U S. and in Canada.

Write for prices, describing kind of saw used — length wanted, and whether right or left-hand.

**J. J. Robinson,**

**Patentee**

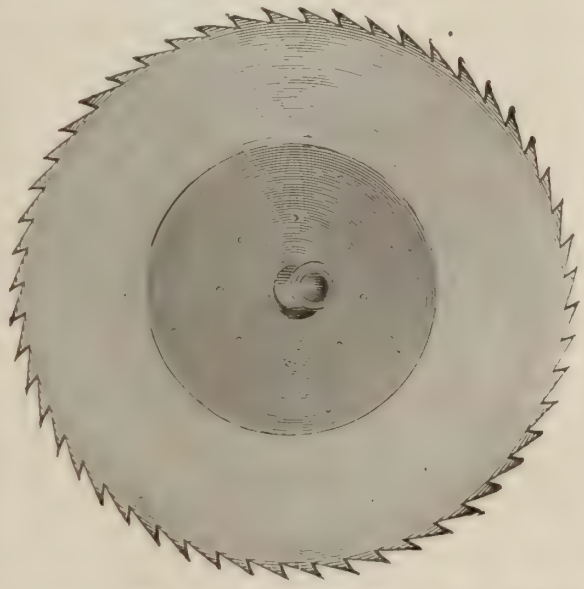
**Bloomsburg, Col.Co., Pa., U.S.A.**

# R. H. Smith Co., Limited

## St. Catharines, Ontario

MANUFACTURERS OF THE CELEBRATED "GOLD COIN" SAWS

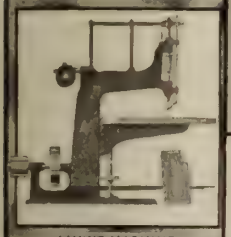
**We make**
**Inserted Tooth**
**Saws,**
**Shingle Saws,**
**Cross Cut Saws,**
**Hand Saws,**
**etc., etc.**



**We make every kind of Saw required in Saw Mills, Planing Mills, Furniture Factories, Piano Factories, Carriage Factories, etc., etc.**

We have been manufacturing for the Canadian trade since 1855, and have maintained the same high standard of excellence. Let us know your saw requirements.

# WOOD WORKING MACHINERY


LINING MACHINE

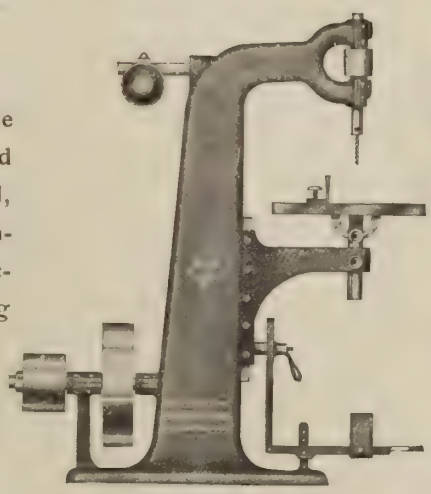
VERTICAL BORER

DOWEL MACHINE

CARVER

## Our Vertical Borer

Has tilting table with balanced foot-lever feed, and with stationary bit for accurate boring has no equal.

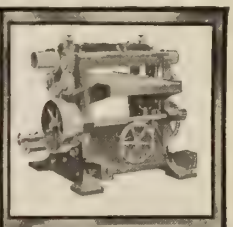


Is the latest and best of its kind.

**Send for Catalogue**

## Valley City Machine Works

**No. 18 Campau St. - Grand Rapids, Mich., U. S. A.**

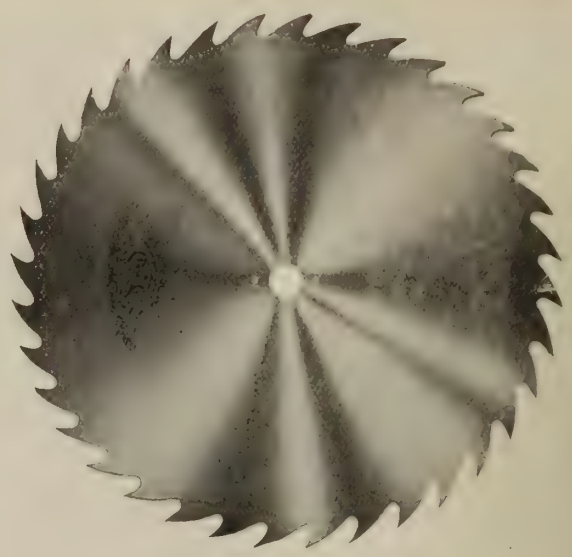

SINGLE SURFACER

RADIAL BORER

LOCK MORTISER

WOOD LATHE

# When the Circular Saws in your Planing Mill are



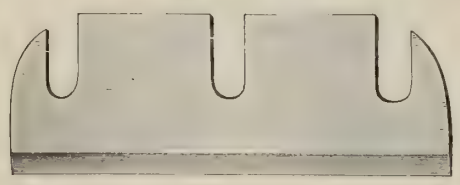
# Simonds Saws

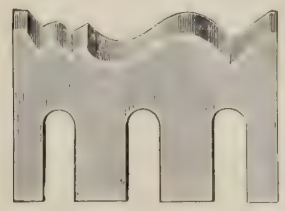
**AND BEAR THIS TRADE MARK**

SIMONDS CANADA SAW COMPANY LTD. VANCOUVER B.C. TRADE MARK Simond Steel REG'D ST JOHN. N.B. UNEQUALED IN QUALITY AND UNIFORMITY MONTREAL.QUE

The Guarantee of Quality made by our Company protects you and assures you a product that is the Height of the Saw Making Art.

# Simonds Machine Knives





Are made in all styles and any desired size. Welded, Balanced, and Finished with the greatest care. Orders promptly filled. Standard sizes carried in stock.

**Factory in Montreal**

## Simonds Canada Saw Co. Limited

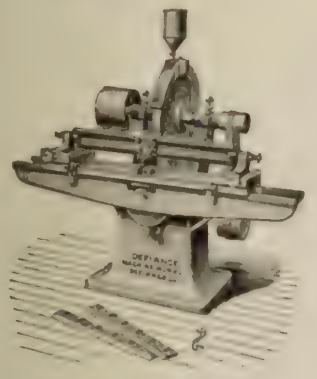
**Montreal, Que.**

**Vancouver, B.C.** **St. John, N.B.**

**Reduce your cost of production and increase the amount and character of your output at the same time. This can be done with the use of**

Patent Variety Lathe.

If you are interested
Write for a Catalogue.



Automatic Knife Grinder.

## "Defiance Wood-Working Machines"

### The Trustworthy Kind.

Up-to-date machines for making hubs, rims, spokes, wheels of every kind, wagon, carriage and automobile woodwork, shafts, poles, neckyokes and singletrees, handles of every description, spools and bobbins, chair and table legs, hoops, golf sticks, insulator pins, oval wood dishes and a general line of wood working.

No. 1 Knife Balancing Scale.

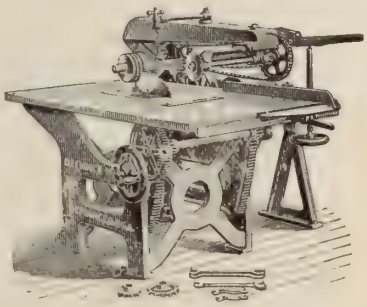
Everything necessary for sawing, planing, shaping, turning, boring, mortising and sanding wood of every variety.

Designed, patented, built and guaranteed by

## The Defiance Machine Works,

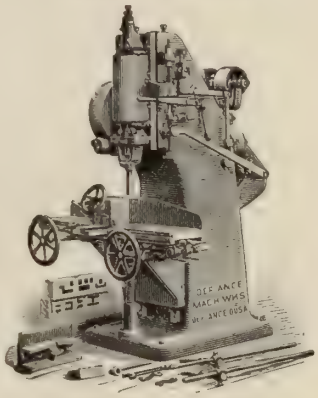
DEFIANCE, OHIO.

European Office, 71 Queen St., E.C.,
LONDON, ENGLAND.

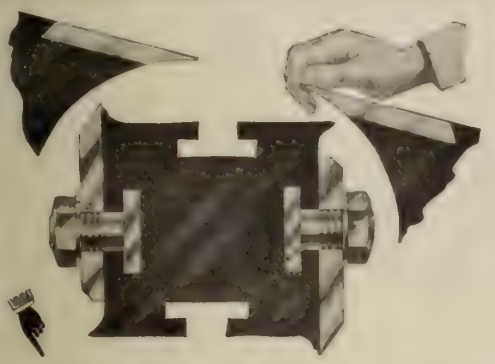


No. 3 Power-Feed Rip Saw.

Detailed Quotations
Supplied on Demand.



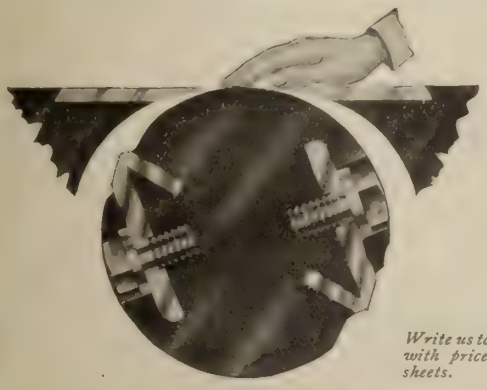
No. 1 Hollow Chisel Mortiser.



## The Old Way

of cutting off fingers on the hand Joiters.

**You ought to equip your Jointers with "The Porter" Patented Safety Cylinders**



## The New Way

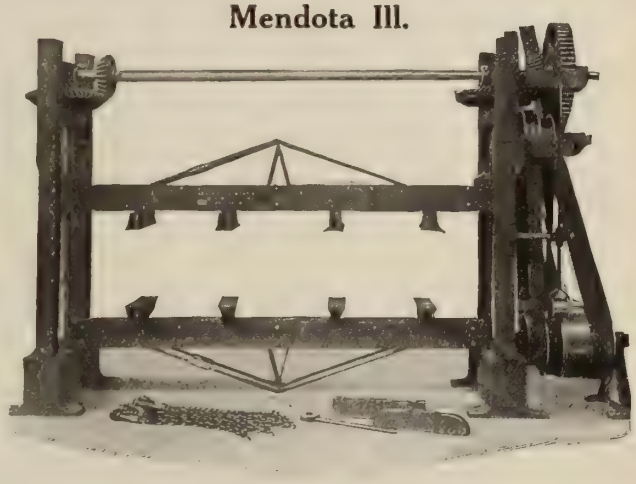
prevents those terrible accidents

*Write us to-day for our catalog with prices and specification sheets.*

## C. O. Porter Machine Co. Grand Rapids Mich.

## Black Bros. Machinery Co.

Mendota Ill.



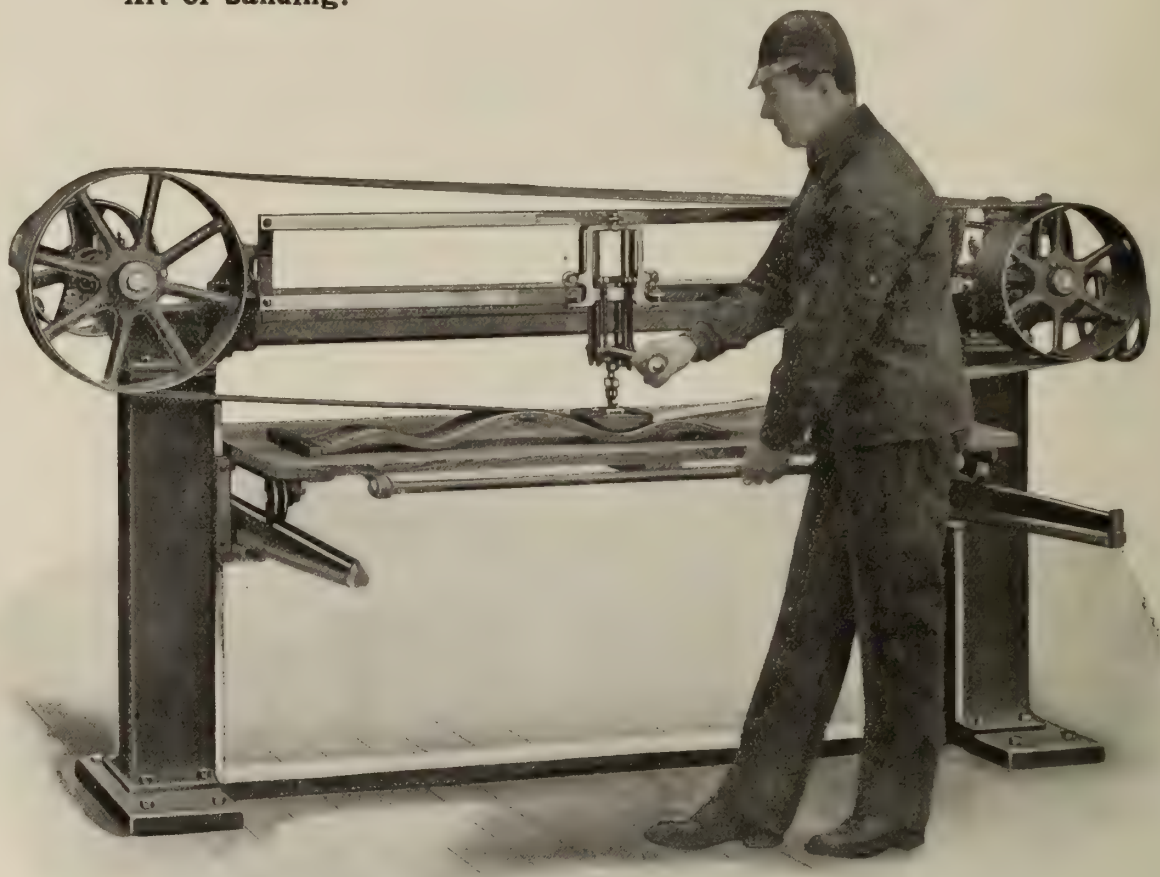
## A Veneer Press with a Reputation

We would like to give you particulars of this machine, because we can show you increased production and a better finished job. :: :: :: :: ::

**Better let us send you a folder about our Veneer Presses**

# Belt Sanders

Play an important part in Modern shop practice. The public demands **"smooth finish"** even in the cheaper lines of goods. What they demand they will get, if not from you then from your Competitor. You want the business and you can get it if you will only discard your old methods of "curry combing" your product and install our **Lucas Belt Sander.** This machine has revolutionized, simplified and perfected the **Art of Sanding.**



Canada's Best

## LUCAS-BELT SANDER

Patented

In Wood Tools

Stands for 100% Efficiency

By "Efficiency" we refer not only the quality of the work done but also to the quantity. What we claim is that the Lucas Belt Sander on **flat surfaces** or **irregular shaped forms** is capable of turning out more strictly high-class work than any other belt sander you can buy. **Let us prove it to you.**

WRITE FOR CATALOGUE AND PRICES

## Canada Machinery Corporation Limited

GALT, ONT.

# Canadian Woodworker

**Canada's Only Woodworking Paper**

Published in the interests of Planing Mills, Saw Mills, Furniture and Piano Factories, Implement and Carriage Works, Boxmakers and Coopers.

The Circulation extends from the Atlantic to the Pacific and covers thoroughly all classes of Woodworkers in this immense territory.

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**Vol. 9 January, 1911 No. 1**


## Conservation of Timber Wealth

A most comprehensive and complete report has been presented to the government of the Province of British Columbia by a commission of investigation composed of Messrs. Fred. J. Fulton, K.C., A. C. Flumerfelt and A. S. Goodeve, M.P., constitutiong what is commonly known as the commission on forestry. This commission was appointed on the 9th of July, 1909 "for the purpose of making inquiry into and concerning the timber resources of the province, the preservation of forests, the prevention of fires, the utilization of timber areas, afforestration, the diversification of tree growing, and generally all matters connected with the forest reservation of the province."

1. That a complete cruise of all crown granted timber lands should be made by the government; that in future the department of forests should co-operate with the assessors; and that an annual return should be made of the valuation of all such timber lands.

2. That as far as possible timber leaseholds should be placed upon renewal, upon a parity with licensed timber lands and that they should be subject to the same forest regulations.

3. That the rate of rental and of royalty upon special licenses should at no time be fixed in advance for more than one calendar year.

4. That the Land Act be amended so as to empower the government to grant the right of cutting saw-mill timber to pulp lessees and that a new form of license be provided for this purpose in the manner described by your commissioners.

5. That the same form of license as that provided for pulp lessees be issued to holders of tan bark leases who may desire to cut mill timber upon their lease holds.

FOREST RESERVES.

6. That the present reserve upon unalienated timber land be continued indefinitely; and that when special circumstances necessitate the opening of any portion of this reserve for immediate operations, licenses to cut timber thereon should be put up to public competition, upon a stumpage basis.

7. That licenses to cut timber upon fractional areas adjoining, or surrounding leased or licensed timber lands should be put up to public competition and that a "fractional area" be defined with great care in the wording of the "Land Act."

8. That the record of every cruise and survey made by the government in timbered areas should be accompanied by a report concerning the suitability of the land for agricultural purposes, that the power to compel licensees to cut and remove timber from good land be retained and that at the time of renewal the same provision be inserted in every timber lease.

9. That the issue of handlogging licenses be discontinued.

10. That no divided interest in a special timber license be recognized.

11. That for the convenience of holders one day be fixed in each month for the renewal of all lincenses expiring in that month.

12. That royalty be collected on all merchantable timber not removed from crown lands in the course of logging operations.

FOREST FIRES.

13. That operators be required to dispose of debris.

14. That the protection of forests from fires be undertaken by the government through the agency of a permanent forest organization upon the lines of the Northwest Mounted Police and that it be compulsory for all able-bodied citizens to assist in this work when called upon.

15. That the cost of fire protection be shared between the government and stumpage holders in the manner proposed by your commissioners.

16. That the provincial government should co-operate with the Dominion railway commission; that a vigilant patrol of all railway lines and inspection of locomotives should be established; and that all railway construction should be supervised by provincial forestry officials.

17. That special licensees should be instructed to proceed with the survey of their holdings; and that all such surveys should be completed not later than Dec. 31, 1915.

18. That all operators should be required to make periodical returns concerning their operations, to the forestry officials in their district; and that the collection of information should be undertaken upon much broader lines than hitherto.

19. That the government should also proceed with the establishment of a department of forests.

20. That royalties upon crown timber should be paid into a forest sinking fund in the manner described by your commissioners.

21. That by suitable changes in the customs tariff, the utilization of low grade timber should be encouraged.

# OUR TRADE WITH SOUTH AFRICA

The Department of Trade and Commerce have issued as a supplement to the Weekly Report a "Special Report Upon the Trade and Comemrce of South Africa," from which we taken various paragraphs which we believe should be of interest to our Canadian manufacturers of wood products, etc.

We would suggest that any of our readers who are interested in the exporting of their products, that they should write to the department for a copy of this supplement.

It appears from the figures and statements given that Canada has an excellent opportunity of competing for this immense trade of South Africa, but that up to the present time the efforts made by Canadians have not been along the right lines.

SCHOOL AND CHURCH FURNITURE.

The Dominion's share of the trade in school and church furniture is most disappointing. In a country where schools are both numerous and up-to-date, and wood plentiful, one would have thought that Canada could at least have competed with the United Kingdom in school furniture. South Africans are so impressed with the importance of education that school appointments are likely to be an increasing business.

| | 1909. | 1908. | 1907. | 1906. |
|---|---|---|---|---|
| | £ | £ | £ | £ |
| Canada | 55 | 52 | 656 | 409 |
| United Kingdom | 17,679 | 6,964 | 14,978 | 12,732 |
| Germany | 709 | 1,017 | 1,661 | 1,192 |
| United States of America | 3,256 | 2,369 | 3,842 | 3,634 |
| Totals | 12,280 | 10,995 | 22,943 | 19,340 |

Four chief styles of desks are imported. The first in single desk pattern are quoted in sizes 1 and 2 f.o.r. East London at 17s. 6d., and in size 3 and 4 at 16s. 3d., size 5 and 6, 16s.; rears and fronts all sizes at 13s. 6d. An automatic single desk, solid with separate seats and inkwells at £1 7s. 10d. Rear and fronts all sizes for the single seats are 19s. and for dual desks £1 6s. 5d.

Not many new churches are going up, but there is a certain amount of renewals in furniture constantly taking place.

FURNITURE—ALL OTHER KINDS.

Under the heading of 'Furniture all other N.O.D.' would come house and office furniture; in fact these two comprise nearly the whole of the item. There is a substantial gain here of nearly £30,000 for the twelve months.

As with school and church furniture, the Dominion's showing is not encouraging. Canadian house furniture in such lines as chests of drawers, wash stands, wardrobes, tables and chairs can compete in quality with the United States article, but Canadian manufacturers do not seem to be able to compete in price or in enterprise. Bentwood chairs are coming in to a small extent from Canada. It is a line that might be much extended, but appears to lack support. While they are inferior in finish to the Austrian article, they are stronger and a little cheaper.

Some United States quotations f.o.b. New York less 2½ per cent. are as follows:—Scotch chests, 8 drawers, walnut, $12.50 each; washstands, single, $10.50 per doz.; washstands, double, $14.50 per doz.; 3-drawer washstands, $3.75 each; oak sideboard 42-inch top completely flat (K.D.), $13.50 each; kitchen cupboards, top 42 x 18-inch in lots of 24, $4.00 each; kitchen tables, 3 ft. by 1 ft. 9 in. drawer, white top, $15.00 per doz; box seat dining chairs, oak, polished, $19.00 per doz.; common wood seat chairs, light or golden, $7.75.

The better class of imported furniture comes from the United Kingdom, but the locally made article is commencing to cut into this. Furniture has been in South Africa from early days, but only recently has the industry become one of importance. Now in every store or warehouse in which good furniture is stocked, are articles of domestic manufacture. And there is no doubt that the goods are well made, and of good material. In time they must exert a material effect upon the imported article. Probably this fact will not apply to such household furniture as Canada is now exporting to South Africa, or only in a small degree; it will not pay for many years to make the cheaper kinds locally.

Apparently none of Canadian office furniture is coming into the country, or only a very small quantity, yet the Canadian article is quite as good as the best. Owing to improved methods being introduced into office systems, there should be a steady demand for office furniture, particularly filing cabinets. Of the latter, the metal ones seem to be gaining in popularity. The United States firms send more than the British; and of the former, of a New York State concern has particularly been the subject of most comment.

There is a good demand for furniture 'in the white,' but at present no Canadian factory seems to be in the market for this class. The only way to succeed in the furniture trade is to secure the services of a reliable, energetic and aggressive agent who covers the whole country at least once a year, if not twice. These are obtainable, but some of the best men demand a small allowance in addition to the commission, and considering the effort required to introduce a new article, it is not unreasonable.

| | 1909. | 1908. | 1907. | 1906. |
|---|---|---|---|---|
| | £ | £ | £ | £ |
| Canada | 3,475 | 4,757 | 6,276 | 9,041 |
| United Kingdom | 138,415 | 114,792 | 146,918 | 256,693 |
| Austria | 5,787 | 4,599 | 3,918 | 7,242 |
| Germany | 16,209 | 13,938 | 15,643 | 20,421 |
| United States of America | 19,273 | 17,653 | 25,980 | 42,814 |
| Total | 193,434 | 165,618 | 211,599 | 353,534 |

## Manufactured Wood

EMPTY BOXES.

The trade in boxes is almost certain to be an increasing one, as there is very little material in this country suitable for this article. The reason for the increase is due to the number of new industries established and growing, which requires boxes for the shipment of their goods, notably those devoted to fruit, jam, dynamite, candles and soap. The demand for butter boxes is also expanding. Up to the present it has been almost impossible to get quotations for boxes of any kind from Canada. As spruce is so eminently suited for butter boxes, it seems unfortunate that none of the mills seem inclined to cater for this class of trade. It would be necessary to secure this business to land a box here under the Australians, whose c.i.f. price is about 1s. 9d. a piece.

Many trade inquiries for boxes of all kinds have been sent to the Weekly Report. In most cases specifications as to size have accompanied them. The greater number of these were published about the midle of last year.

| | 1909. £ | 1908. £ | 1907. £ | 1906. £ |
|---|---|---|---|---|
| United Kingdom .... | 6,013 | 6,567 | 7,185 | 9,879 |
| Australia ..... | 1,371 | 623 | 42 | 172 |
| Sweden ..... | 33,481 | 34,655 | 28,190 | 36,324 |
| U. S. of America .... | 472 | 418 | 650 | 995 |
| Total ..... | 45,947 | 46,385 | 40,157 | 56,238 |

HANDLES FOR PICKS.

Owing to the extent of the mining industry on the Rand there is a large demand for hammer handles. Up to the present it has been impossible to interest any Canadian exporters in this class of the business.

| | 1909. £ | 1908. £ | 1907. £ | 1906. £ |
|---|---|---|---|---|
| U. S. of America .... | 7,891 | .... | .... | .... |
| United Kingdom .... | 4,452 | .... | .... | .... |
| Total ..... | 13,520 | With all other N.O.D. | | |

HANDLES ENTIRELY FROM UNITED STATES.

All the handles that come into this market are made by United States manufacturers. The best known makers send some axe handles out here quoted New York at 8s. 9d., less 45 per cent. and 2 per cent.

The ———— Co. quoted axe handles at the following prices:—

| | | |
|---|---|---|
| 30 to 36 inches ..... .... | $5 00 | per doz. |
| "Extra" ..... .... | 4 10 | " |
| No. 1 ..... .... | 3 25 | " |
| No. 2 ..... | 2 10 | " |
| No. A ..... | 2 00 | " |

PICK HANDLES.

| | | |
|---|---|---|
| 36-inch ..... | $5 00 | per doz. |
| "Extra" ..... | 4 75 | " |
| No. 1 ..... | 3 25 | " |
| No. 2 ..... | 2 55 | " |
| No. A ..... | 2 05 | " |

PICK HANDLES FOR COAL MINES, 32 TO 34-INCH.

| | | |
|---|---|---|
| '————' ..... | $3 70 | per doz. |
| 'Extra' ..... | 3 15 | " |
| No. 1 ..... | 2 60 | " |
| No. 2 ..... | 1 85 | " |
| No. A ..... | 1 60 | " |

WEDGE HANDLES FOR SLEDGE HAMMERS, DRILS, MANTLES, ETC.

| Inches .....per doz. | 24 | 28 | 32 | 36 | 40 |
|---|---|---|---|---|---|
| 'Extra' ..... | $1 75 | $1 90 | $2 20 | $2 45 | $3 25 |
| No. 1 ..... | 1 50 | 1 65 | 2 05 | 2 20 | 2 75 |

BLACKSMITH'S AND MACHINISTS ADZ-EYE AND ROUND-EYE HAMMER HANDLES.

| Inches ..... | 13 | 14 | 16 | 18 | 22 | |
|---|---|---|---|---|---|---|
| 'Extra' ..... | $0 95 | $0 95 | $1 20 | $1 35 | $1 60 | per doz. |
| No. 1 ..... | 0 70 | 0 70 | 0 85 | 1 05 | 1 25 | " |

Discount 45 and 2 per cent. off handles quoted f.o.b. at New York.

ALL OTHER N.O.D.

| | 1909. £ | 1908. £ | 1907. £ | 1906. £ |
|---|---|---|---|---|
| United Kingdom .... | 10,108 | 14,891 | 14,635 | 19,731 |
| Germany ..... | 4,062 | 4,840 | 4,991 | 7,357 |
| Sweden ..... | 4,017 | 4,389 | 8,397 | 8,983 |
| U. S. of America .... | 9,754 | 13,139 | 14,878 | 28,931 |
| Total ..... | 31,615 | 39,401 | 46,172 | 72,897 |

STAVES, SHOOKS AND WOODEN HOOPS.

The importance of staves, shooks, etc., which are required for the sugar industry, runs up each year into larger figures. Hoops come from the United Kingdom, the staves and shooks from the United States.

Reference has been made in other reports to the fact that some effort might be made by Canadian firms to obtain part of this import. As Canada has native woods of strength and durability equal to oak, it would seem that experiments ought to be undertaken with a view to making a cask of such woods, to replace the oak ones now supplied by the United States.

The importation of staves, shooks and hoops is given in the following statement for 1909 and 1910:—

| | Packages. 1909 | Packages. 1910 |
|---|---|---|
| Wooden hoops ..... | 1,860 | 23,580 |
| Shooks ..... | 6,171 | 859 |
| Staves, oak ..... | 945,305 | 592,153 |
| Staves, other ..... | 92,420 | 7,200 |

## Largest Hemlock Found

The largest hemlock tree in the world so far as is known stands in Lewis County, Wash., and as it is included in the Rainier National Forest it may add centuries to the several hundred years which it has been growing.

The tree, which measures 23 feet in circumference and seven and one-third feet in diameter, has a clean stem to the first branch, 100 feet from the base, and is perfect in every way. The king of hemlocks stands among others of its species, four, five and six feet in diameter, and lifts its crown 250 feet into the air.

# From Coast to Coast

MR. SIFTON WOULD SPEND $25,000,000.

Ottawa, Ont.—It is learned at the forestry department that a gigantic plan is expected to be outlined before the Dominion Forestry Convention at Quebec by Hon. Clifford Sifton, chairman of the Conservation Commission, regarding the conservation of forests. He will recommend an expenditure during the next few years aggregating $25,000,000, which will practically make the forests of the Dominion immune from any loss at any one time by fire. The plan involves the organization of a fire-fighting and fire-preventing corps, modelled upon the Northwest Mounted Police. It may also involve co-operative legislation by the various provinces, which will place all forests more directly under the control of the Dominion Government.

NEW FACTORY OPENED.

Toronto.—Gourlay, Winter & Leeming, piano manufacturers, have opened a new factory here.

PECULIAR LUMBER CASE.

Victoria, B.C.—At a recent meeting of the provincial executive a matter of peculiar interest was introduced by J. A. Harvey, K.C., appearing for Mr. McCoy, the owner of timber limits close to the international border in south-east Kootenay. The application was that some provision be made by law to enable Mr. Harvey's client to export his raw output to the American side, it being shown that owing to the physical condition of the country, a mountain intervening on the Canadian side, it is virtually impossible to utilize the timber from this comparative small area by manufacture within British Columbia as strictly demanded by the provincial policy and law. The determination of the government to rigidly insist upon the observance of the law for the stoppage of the export of raw timber to the United States has time and again been emphasized by refusal by the government to lift or vary the statutory embargo upon raw timber export. This would appear, however, to be an exceptional case, and in consequence the entire matter has been referred for investigation by the chief commissioner of lands, Hon. W. R. Ross, who will later report to the executive.

TIMBER LIMITS SOLD AT AUCTION.

Hampton, Kings Co., N.S.—H. J. Fowler sold at the court house here at property in the parish of Wexford containing 175 acres, held by George McKean, lumber merchant, of St. John, on a mortgage from James Kennedy, lumberman and millman. It was bought in by Mr. Golding, acting for Mr. McKean, at $50 above the mortgage.

At the same time and place Sheriff F. W. Freeze sold another lot of 200 acres, and a further lot of 100 acres, both in the same parish, under a writ of fieri facias, issued out of the supreme court, in a cause wherein Geo. McKean was plaintiff and James Kennedy defendant, which were also bought in for Mr. McKean at $50 over the sum named in the writ.

HOME MARKET FOR PULPWOOD.

Toronto.—With a view to supplying the settlers in an extensive area of Northern Ontario with a convenient market for their pulpwood, the Provincial Government has decided to offer for sale two important pulpwood concessions, one in the Abitibi, and the other in the Rainy River District. Orders in Council were passed by the Government authorizing the Minister of Lands, Forests and Mines to ask for tenders. A bonus in addition to the regular dues will be asked for the tenders.

The right to cut pulpwood over the area of 2,360 square miles contained in the Abitibi and Rainy River concessions carries with it an obligation to erect pulp and paper mills capable of handling the output of spruce, not only from the concessions, but from the surrounding country as well.

The Abitibi Lake concession, which is the largest, contains an approximate area of 1,560 square miles, and when the pulp and paper mill is established and in operation an excellent home market will be afforded for the pulp products of the settlers along the line of the Temiskaming & Northern Ontario Railway and the Grand Trunk Pacific in the neighborhood of the junction at Cochrane.

FAR-REACHING PLAN OF B. C. COMPANY.

Nelson, B.C.—If the present plans of the Canyon City Lumber Company are carried out, their present large limits will eventually all be converted into orchard, or all that portion that is adapted for the purpose. C. O. Rodgers, secretary treasurer and managing director of the company, was in Nelson recently and unfolded his plans to W. A. Haldane, general freight agent of the C. P. R.

The company's mill, which is winter running, and has a cut of 7,000,000 feet, is situated at Canyon City, three miles east of Creston, and the company's limits are 12,500 acres in extent. The greater part of this great tract is the common soil of the famous Creston fruit district, and in fact, Mr. Rodgers' plans to bring something over 8,500 acres under his scheme. His proposal is to take the land as fast as it is logged off, clear it, prepare it, and set it out to orchard. In pursuance of this idea, the land logged off and cleared in 1909 was planted to fruit the past season. From now on, Mr. Rodgers expects to log from 300 to 400 acres per year, and as fast as this proceeds, the clearing outfit will follow. As 9,000 acres, set out at 100 trees per acre, each tree at seven years producing four boxes, will produce, at 630 boxes per car, some 6,000 carloads, it can be seen that there will be something doing in the future on this particular tract of land. Mr. Rodgers' idea is to prepare the land most

carefully, set it out to approved varieties, and take care of the young orchard till it is coming into bearing.

The Canyon City Lumber Company has solved the fire problem, as the clearing of land immediately after logging disposes of the food on which fires feed. D. W. Briggs, of Saginaw, Mich., of the well-known firm of Briggs & Cooper, is president of the company, and his partner, James Cooper, is vice-president.

NEW INDUSTRIES FOR ST. JOHN.

St. John, N.B.—A large paper mill will be added to the list of new industries in St. John. The Edward Partington Pulp & Paper Company has successfully operated a large pulp mill here for some years, and now announce that they will erect a paper mill. The head of this company is Edward Partington, of Glossop, England, who has very large investments in the pulp and paper trade of Great Britain. The company's representative is now in England and it is expected that on his return preparations for the erection of the paper mill will be begun.

The A. R. Williams Machinery Company has purchased a six-storey brick building on Dock Street and M. W. Doherty, who has been appointed local manager, said it was possible that within a short time the company would be manufacturing on a large scale here.

Other announcements of interest are that a brush and broom factory and one of the local foundries are both securing increased space for the enlargements of their manufacturing operations.

HUNDRED THOUSAND MILL FOR IMPERIAL.

North Vancouver.—With a request for exemption from taxation and free water for a period of ten years, Mr. C. C. Michener, president of the Red Fir Lumber Company of Nanaimo, appeared before the district council in respect to their proposed mill at Roche Point. The clerk read a letter received from Mr. Michener some time ago in reference to the matter and outlining the prominent features of their proposition. In further explanation, Mr. Mitchener stated that his company had disposed of their interests in Nanaimo and had closed a deal for five acres at Roche Point, where they were about to erect one of the largest and most up-to-date mills on the coast. They were under agreement by the purchase to complete the mill by the first of May next year. So far progress had been satisfactory. The land was cleared and some small buildings were erected. The mill was estimated to cost approximately $100,000, would cut 100,000 feet a day, and was under agreement to operate for nine months of the year. From 50 to 75 men would be employed and a preference would be given to white labor.

TIMBER PURCHASED.

Apple Grove, B.C.—A lumbering outfit is soon to be established at Apple Grove, at the mouth of Long Creek, having purchased all the unsold timber.

CANADA'S LUMBER CUT.

An increase of 396,776,000 board in the cut of lumber in Canada last year over the previous season is shown by statistics compiled by the forestry branch of the Interior Department. Of this increase, 31,704,000 feet, or 47.2 per cent., is credited to Ontario for her cut of spruce alone. An increase of 22 per cent. in the British Columbia cut, with a decrease of 7.7 per cent. in the cut in Quebec, has caused the latter province to drop from second to third place amongst the provinces in point of lumber production. British Columbia now occupies second place. Quebec, however, is still the chief spruce-producing province, nearly one-third of the total spruce cut being credited to her. The cut of spruce was an increase over the previous year in every Province except Saskatchewan and British Columbia.

LAKEFIELD CANOE WORKS BURNED.

Lakefield, Ont.—The Lakefield Canoe Building and Manufacturing Company's factory has been totally destroyed by fire. The origin of the fire is unknown. Loss, $5,000, partly covered by insurance.

B. C. HAPPENINGS.

Another sawmill is being started at Hazelton.

Bert Averill has a contract to supply the Kettle Valley Railway with 50,000 ties. He has 14 men cutting ties on the west fork of the Kettle River.

Mike King, the noted timber cruiser, died in Victoria this month, aged 62 years.

C. E. Mahon, of Vancouver, has sold 105 sections of timber in the Fort George district to British capitalists for $1,500,000.

Peden's sawmill in South Fort George employs 26 men.

Ed. Burden's shingle mill at Molson is burdened with orders and will have to put on a night shift.

## A Review of Lumber Industry in Various B. C. Districts

INDUSTRIES IN NELSON.

Nelson is already an industrial centre of no mean proportions. The Yale-Columbia saw-mill, recently taken over by the big merger, is the largest single industry, employing 60 to 70 hands.

The sash and door factory of John Burns & Son, and the Kootenay Monumental Works, occupy important positions with reference to the building trade of city and district.

TRAIL INDUSTRIES.

The Annable Lumber Company's mill, located about two miles west of the city, is another valuable industry which contributes to the prosperity of the city. Over 100 men are employed by the company and from $8,000 to $10,000 is distributed monthly in wages.

GRAND FORKS SAWMILLS.

Next in importance to the mining industry comes that of lumbering. Three large sawmills are operated in the district, owned respectively by the Porto Rico Lumber Company, the King Lumber Company, Limited, and the Kettle River Lumber Company.

The district also contains large areas of timber, consisting of fir, tamarack, pine, spruce and cedar, which gives employment to a great number of men as there are

three large sawmills running continuously in the vicinity of the city.

FERNIE LUMBER MILLS.

The lumber mills have had a most successful season and the satisfactory pay rolls from this source have added considerably to the prosperity of the city and surrounding districts. The mills are at present closed down, but all the companies have large forces of men engaged in the bush and the cut will be a heavy one.

Ymir.—In the shipment of forest products little has been done since the fires of last fall. While considerable damage was experienced, in common with other places where there was an abundance of timber, still it was nothing like reports made it out at the time.

Clarkson Bros. and the Churchill Cedar Company are still shipping, the former mostly to the northwest territories, and the latter to eastern and southern points. Their products consist of posts, poles and piling, and there are vast quantities of all kinds of material for these products.

CRANBROOK AND DISTRICT.

There are 23 sawmills in the district and two sash and door factories.

DEER PARK.

There is an immense amount of the finest merchantable timber in the district, consisting mainly of pine, fir and cedar.

AINSWORTH.

As for timber, there are a large number of timber claims staked out, with plenty of timber on them. They are about four or five miles from town and up to the present have never been touched.

CRESCENT VALLEY.

Aside from agriculture the other big industry is that of the Patrick Lumber Company, who operate one of the largest mills in the interior of British Columbia. During the past summer they have built several nice homes for their employees and a large store with hall above. These, with the older bunk houses, have all been painted white, which adds greatly to their appearance. Since the completion of their season's run of their large mill the company has fitted up their new planing mill, which is running steadily and gives employment to many of the settlers.

KOOTENAY AND NEIGHBORING DISTRICTS.

Some of the chief lumber milling firms in the Kootenay and neighboring districts are as follows:

YALE-COLUMBIA CO.

The Yale-Columbia Lumber Company has mills at Westley and at Cascade and has a milling capacity of 150,000 feet per day. Its annual cut of lumber averages 30,000,000 feet and its average monthly pay roll is $25,000. The company has $1,250,000 invested in its mills and timber limits.

The officers of the company are: S. S. Bowman, president; E. C. Warner, vice-president; W. N. Poole, secretary-treasurer. F. A. Estey is superintendent.

PATRICK LUMBER CO.

The Patrick Lumber Company has its mills at Crescent Valley and owns some 9,000 square miles, or 600,000,000 feet, of timber in the vicinity of the valley. The logs are carried down to the mill, which has a daily capacity of 125,000 feet, on the waters of the Slocan and Little Slocan rivers. The president of the company is H. Markland Molson, of Montreal, and J. W. McConnell, of Montreal, is secretary-treasurer. Joseph Patrick, of Nelson, is managing director.

The company has $200,000 invested in mills and an equal sum in timber limits, and during the year just closed manufactured 11,000,000 feet of lumber. They state that the outlook for the present year is very good and that they estimate the output of manufactured lumber for 1911 will be 15,000,000 feet.

The number of men employed at the mills and in the yards during the past year averaged 50, while about 175 were engaged in logging operations in the woods.

KOOTENAY SHINGLE CO.

At the well-known mining town of Salmo, the gateway to Sheep Creek, is the Kootenay Shingle Company, Limited. This company deals almost entirely in shingles and operates a mill with a daily capacity of 200,000 shingles. The company has $60,000 invested in mills. It values its plant at this figure and estimates the value of its timber limits at $100,000.

The officials of the company are: E. Crow Baker, president; J. A. Sayward, vice-president; Arthur E. Haynes, secretary-treasurer, and C. I. Archibald, managing director. Of the outlook for the present year Mr. Archibald says: "It is very good. The stocks in the northwest are very low and the dealers will soon be forced to buy for the spring trade. During the past three weeks they have placed a considerable amount of business with the manufacturers."

CROW'S NEST PASS LUMBER CO.

With mills at Wardner and Galloway, in East Kootenay, the Crow's Nest Pass Lumber Company, Limited, is one of the largest lumber manufacturing enterprises in the Kootenays. The two mills have a daily capacity of 400,000 feet of the manufactured product and the company employs about 550 men. Of this number 300 work in the mills and yards and about 250 are employed in the camps. The varieties of timber on this company's limits are larch, fir and white pine.

The officials of the company are: W. Wente, Manistee, Mich., president; W. F. Baker, Manistee, vice-president; W. J. Gregory, Manistee, secretary-treasurer; and P. Lund, Wardner, managing director.

EAST KOOTENAY LUMBER CO.

Another large lumber company in the eastern of the two counties of Kootenay is the East Kootenay Lumber Company, which has mills at Jaffray, Cranbrook and Ryan. The average daily capacity of these three plants is 150,000 feet and the output for the past year was 24,000,000 fet of manufactured lumber and 250,000 railway ties. The timber limits of this company extend over

100,000 acres and the varieties of timber on this large acreage of land are cedar, larch, fir, white pine and spruce.

The company employs 200 men in its mills and yards and 250 in its logging camps. The officers of the company are: Malcolm Leitch, president; E. S. Home, secretary, and A. K. Leitch, managing director. While the past year's business was up to anticipation, Secretary Home says: "The prospects for the coming year were never brighter. A large acreage of fall wheat is under cultivation in the prairies and the climatic conditions of the past few weeks indicate that next season will see a good crop. This will mean heavy building operations in the wheat country during the present year."

M. McINNES.

At Crow's Nest, a small town at the very summit of the Rocky Mountains, M. McInnes has spent the past year in building a mill which will have a daily capacity of 40,000 feet. The cost up to date has been $35,000, but this amount may be exceeded before the plant is completed. Adjoining the mill site Mr. McInnes has some 13,000 acres of timber, larch, fir, spruce and jack-pine. He estimates the value of these limits at $150,000 and during the past year has had about 25 men at work in the woods getting out logs in preparation for the coming season's run.

"The outlook for 1911 is very good," Mr. McInnes states. "The large mill I am building will be the nearest in British Columbia to our great market for manufactured lumber, the prairie provinces. I will thus have the advantage of a short haul."

S. C. SMITH LUMBER CO.

In the Okanagan district there are several lumber mills, which do not generally export much of the manufactured material to the prairies, finding a ready market near at hand. One of the best known of the Okanagan lumber enterprises is the S. C. Smith Lumber Company, which has mills at Naramata. The mill has a daily capacity of 20,000 feet, and during the past year turned out 2,500,000 feet of manufactured lumber.

The varieties of timber on this company's limits are fir, bull pine and spruce. About 15 men are employed at the mill and from 15 to 25 in the logging camps.

The officers of the company are: S. C. Smith, president, treasurer and managing director; A. S. Smith, vice-president, and C. C. Smith, secretary. The company states that the past year's business has been most satisfactory and that the outlook for the present year is very good. "We are now getting out 4,000,000 feet for use in Penticton," the managing director states. This company up to a few months ago also operated a mill at Deep Creek, but has disposed of that plant to another company.

OKANAGAN LAKE LUMBER CO.

The Okanagan Lake Lumber Company, Limited, has a mill at Okanagan Landing. The capacity is 30,000 feet per day. The company estimate the value of their mill and timber limits at $66,000 and employ from 30 to 40 men at the mill and 50 in the camps. The varieties of timber on the limits are fir, white pine and tamarack. The officers of the company are: W. J. Shannon, president; Robert Shannon, vice-president; G. P. Bagnall, secretary-treasurer.

Mr. Bagnall states that the past season's business was not quite up to anticipations owing to a shortage of logs caused by the light snowfall last winter, which prevented the rough logs from being skidded down to the water from which they are taken in booms to the mill. During the year, said Mr. Bagnall, the demand was largely above the capacity of the mill, and he expects that the demand this year will eclipse that of last year.

NEW LUMBER MILL.

The Finger Lumber Company, Limited, is the name of a company recently organized by Herman Finger, formerly manager of the Pigeon River Lumber Company, Port Arthur, Ontario. Associated with Mr. Finger are the officials of the Menasha Wooden Ware Company, Menasha, Wis., who have heavy timber holdings near The Pas, Saskatchewan, where the new concern will operate. The mill will be modern in all respects, the main building being 64 x 208 feet and to contain two iron frame circular rigs, a 48 x 20-inch heavy belt gang, a large edger and an overhead trimmer pneumatically operated. All carriages will be steel and equipped with steam set works. The power house will be fire-proof, the prime mover being one 24 x 48-inch Corliss engine; a twin engine driving the heavy gang. Five 72-inch x 18-foot boilers with steel casing setting will furnish steam. The contract for the complete equipment for the Finger Lumber Company's mill has been let to the Giddings & Lewis Manufacturing Company, Fond du Lac, Wis., and the mill will be in operation next spring.

TO REBUILD AT ONCE.

In the recent destruction of the Rat Portage Lumber Company's plant at Norwood, Man., 300,000 feet of lumber were destroyed. Mr. D. C. Cameron, president of the company, announces that the mill will be rebuilt at once.

NEW INCORPORATIONS.

The British Columbia Gazette gives notice of the incorporation of the following companies: Columbia Paper Company, Limited, capital, $75,000; Columbia Valley Timber Company, Limited, capital, $100,000; Fort George Timber and Transportation Company, Limited, capital, $200,000; Crown Timber and Trading Company, Limited.

PURCHASED BUSINESS.

The plant of the Salmon River Lumber Company in Langley municipality, B.C., has been purcahsed by the Western Lumber Company, of Vancouver, for $60,000. The purchasers have already taken charge and it is their intention to continue to operate the mill. It is situated at Salmon River, a short distance from the Chilliwack line of the B. C. E. R., and has been in operation for about six months. There are also about six hundred acres of timber with the purchase of the plant.

# Planing and Moulding

## What was Noticed on a Trip.

At another mill the writer visited they were running flooring on the sticker. That's old, some of you are saying. Yes, but the way they were running it was new to me. They were running the strips edge up, making the groove with the bottom head and the tongue with the top head, while the side heads were standing idle. The strips were being dressed on both sides over on the surfacer.

Asking why they made it that way, was told they could never get the side heads to keep going on flooring as they were always getting stuck. A glance at the side heads belts explained the reason, 3-inch belts being used where a 4½-inch or 5-inch belt could and should be used.

At another mill the writer came across about the worst run lot of flooring it has been his lot to see for some time. Happening along when they were running maple, and watching the strips going through, the strips seemed to be going up and down, in fact, between the feed rollers it was not held down by the pressure bars, with the result that the tongue and groove were varying on the edge as much as 1-16 inch or more, and when a strip left the front feed rollers the knives clipped about 3 inches of the end thinner than the rest. Picking up a couple of pieces and trying to match them, found that they would not go together without driving. The operator seeing me trying to match them came around with a big hammer and drove a couple of strips together, badly bruising the edges in doing so. And the way those strips matched—they were anywhere but even, except in a few places. Asking the operator why he had them so tight, he said that was the way the boss wanted them, so that when it was drove together it would stay. Asking him why he did not have the pressure bar down tighter, he said he was not going to shove his gizzard out trying to shove the strips in, as when the pressure bars were down tight the feed rollers would not feed the strips. Anyway, it did not matter as the carpenters had to dress the floor even and a little extra work would not hurt them.

The machine was a good one, in fact one of our best makes, so I was surprised at the work. I did not examine it closely for fear of offending the operator, who was kind of getting up on his ear, but a glimpse of the bottom feed rollers showed them below the level of the bed. Had a notion to ask the operator what he thought they were there for.

Over at the other side of the same shop was the sticker—a fairly good 10-inch machine, with an intelligent looking young fellow in charging. Examining some of the work that had just been run through, found it was showing knife marks pretty badly, also in place a bead on a mould was bruised, showing that the back of one of the knives was hitting it. The young fellow seeing me looking at the moulding, asked me if I knew anything about sticker work. He said he had just started on the sticker about two weeks and that he knew hardly anything about it except what he had read in papers, and that he would like to learn right. I at once showed him the knife hitting on the back. He took it off and ground it. In turning the head over I suspected the knives were not in balance. Asking him if he had balanced the knives, he asked what I meant. I found he had no knife balance of any kind and had to guess at it, which is a hard thing to do right, even for an expert. Getting a couple of pieces of tin, some wire and a strip of hardwood, we soon rigged up a knife balancer. Putting his knives on found it took a knife bolt and a small knife to balance up, showing that it was not in balance. Putting the knives on and starting up showed a big improvement in the work.

THE TRAMP.

## Communications.

In reply to C. C. & M. Co., in November's Woodworker. How to keep belts in good condition.

Before lacing a belt make sure that the ends are perfectly square, and use a belt as wide and as heavy as is possible.

When the belt gets dry give it a coat of some kind of pure oil. This brings back the life to a belt, and it is ready for use the following morning. Be careful to keep machine oil from the belt as much as possible.

I have used many different kinds of belt dressing, and object to them all, because as the belt in running the dressing works into it and causes it to crack, which makes it no longer capable of holding a lacing.

H. W. F.

Moulders.—If the party having difficulty with the moulder will write to me, giving a diagram of the bed of the moulder and the pressure bars and springs, I will give him a direct answer, as I have had experience in that line. Address: H. W. Freeborn, 75 Gray St., Brantford, Ont.

## Misfits in Building. Goods Spoiled in Cutting.

A. W. Woods.

The most costly dress goods can easily be spoiled by an unexperienced tailor. He must have an eye for true proportion and style, else the cost of his services is worse than wasted, for through his cutting the goods the spoiled. Though his garments may be made just as substantially and will wear just as long—in fact too long for comfort and peace of mind—yet it is an ill fit, and whether known to the owner or not, there are others who do know a good thing when they see it and the ill fit grates on their nerves. On the other hand, the experienced tailor can take cheap goods and make the same party a suit that will be a graceful fit from head to foot, though it may not be made as substantially as the first. Still it has received the finishing touches that bring out the good points and appeal to the artistic sense.

In no trade is this more applicable than in carpentry work. The architect is like the cutter in the tailor shop. He lays out the patterns for the sub-ordinate workman (the carpenter) to follow. Both are liable to mistakes and seemingly or jointly they may be responsible for a bum job.

In the smaller towns the tailor is the whole thing; he cuts his stock and puts it together, making the finished product. The same is true of the carpenter. He plans and builds; more often plans as he builds. We know a carpenter who makes a business of building and selling houses. He has a reputation of being a good workman, and he is; but his houses lack the finishing touches that show real refinement of taste. He uses good material,

but like the inexperienced tailor, he does not always get a good fit. Some places he cuts his stock long and in others short, and nails them up that way. He wants to build tasty houses and probably thinks he is getting what he wants; and, while he is seemingly successful in selling them at a profit, there is no question but that he could more readily sell to a better profit if he gave better proportion to his houses.

It was our lot to pass from two to four times a day on the cars by one of these houses then under construction. The whole work showed that he wanted to build a good looker; but he did not know how, so to speak, to cut the goods. He wanted a nice wide cornice and he built it wide; but he failed on the nice part because he lacked judgment of proportion. He built dormers on the roof, but he did not care for wide cornices on these, so he left them off. Here he had the two extremes, too wide and too narrow. The contrast was so great that if he could have heard some of the remarks of the passengers that glided by his house, his ears would be tingling yet. At least they were not of the kind that would indicate a prospective purchaser!

And so there are many other points encountered in the every-day house building that could just as well be made right as wrong, without extra cost and thereby adding greatly to the architectural effect. Like the experienced tailor, the skillful builder may take cheap goods and make an ideal fit just the same as he would from the finest of materials and that too with but a trifle extra expense, if any, to the owner.

Let us then study the proportions that enter into the more simple construction of our dwellings. For insance, let us take the porch which is found on most every house of any pretense. It is the first part of the house that the eye catches as we approach the entrance. It is here that the long hours of the hot summer days are spent in study and relaxation. Its proportions should have a restful effect to the eye as well as serving the comfort of the body. Yet, here is where some of th most noticeable misfits are made. Pass along any street and take notice of the cornice and supporting columns. Some will contain sagging lines, caused by not having frame work rigid enough to properly support the weight between the columns, which in many cases are placed too far apart, both for looks and for proper support. Again, probably in the very next porch, probably too many columns are brought into use. In either case, the effect is bad.

But one of the most noticeable mistakes is found in the soffit. It is usually anything but the right width and does not rest properly with reference to the column. The width of the soffit should be governed by the diameter of the column, where it rests on the base, which is the proper reckoning point for its height. But we will not stop to take up this part of the subject now, as it would furnish quite an article itself. The builder should know the size of the column at the base, he should also know the size of the column at the neck and should build his frame work accordingly, so that the finished soffit will exactly centre over the column. This may be easily accomplished by working from a centre line through the column, as shown in the illustration, or better still, have the column on the job; set them up in place and frame the work accordingly so that the soffit will centre over it. In case of large columns, the soffit should be paneled to avoid a large plain surface.

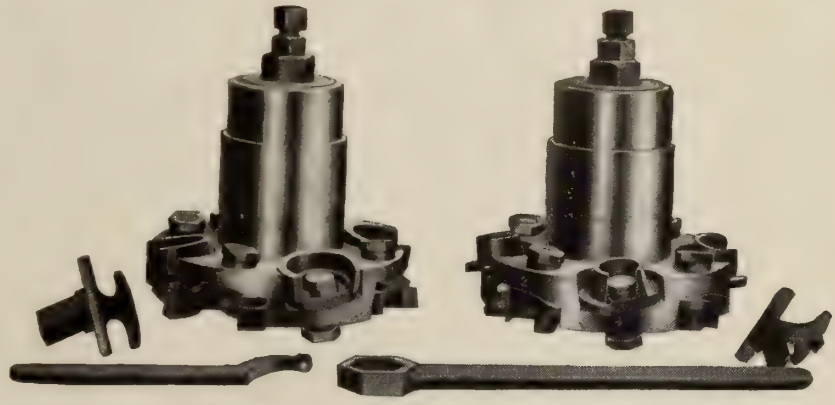
Recently we saw what was intended to be a pretentious porch, but from lack of judgment in proportion the whole thing was spoiled in effect and what otherwise was a fairly well proportioned house was made an awkward misfit. Here cement block columns about eighteen inches square were built up and on top of this a moulded cap, making the top about twenty-four inches square. On this rested a frail looking wood cornice with about an eight inch soffit, leaving projecting ledges on both sides, which made a most excellent bird roost and not the best place to have it either! What should have been done was to have made the soffit the full width of the shaft and with a frieze and plancer more in keeping with the size of the columns. The soffit being wide for solid wood panels, wainscoting could have been used to good effect to form the recess panel, and by breaking a mould around same a simple, yet attractive finish could have been given the whole work without much additional cost.

And it does not stop here with the porch. Mistakes of this kind are generally carried clear through the house, cropping out here and there, from cellar to garret, both internally and externally. In short, the laying out of the plans is a study within itself. Like the expert cutter in the tailor shop, the architect lays out the pattern. Then other workmen take it up and carry out the work to perfection.

## A New Cutter Head.

The user of every high-speed matcher is interested in the production of flooring at the lowest price consistent with good work. He feels the necessity of procuring tools and appliances that will not only do good work, but also such as will add convenience for the workmen with genuine labor-saving advantages.

It is with a view of being of service to the wood-wood-working trade engaged in manufacturing flooring, etc., that this paper herewith illustrates the "Shimer Limited" Cutter Head, the latest member of the large family of Cutter Heads on the market.



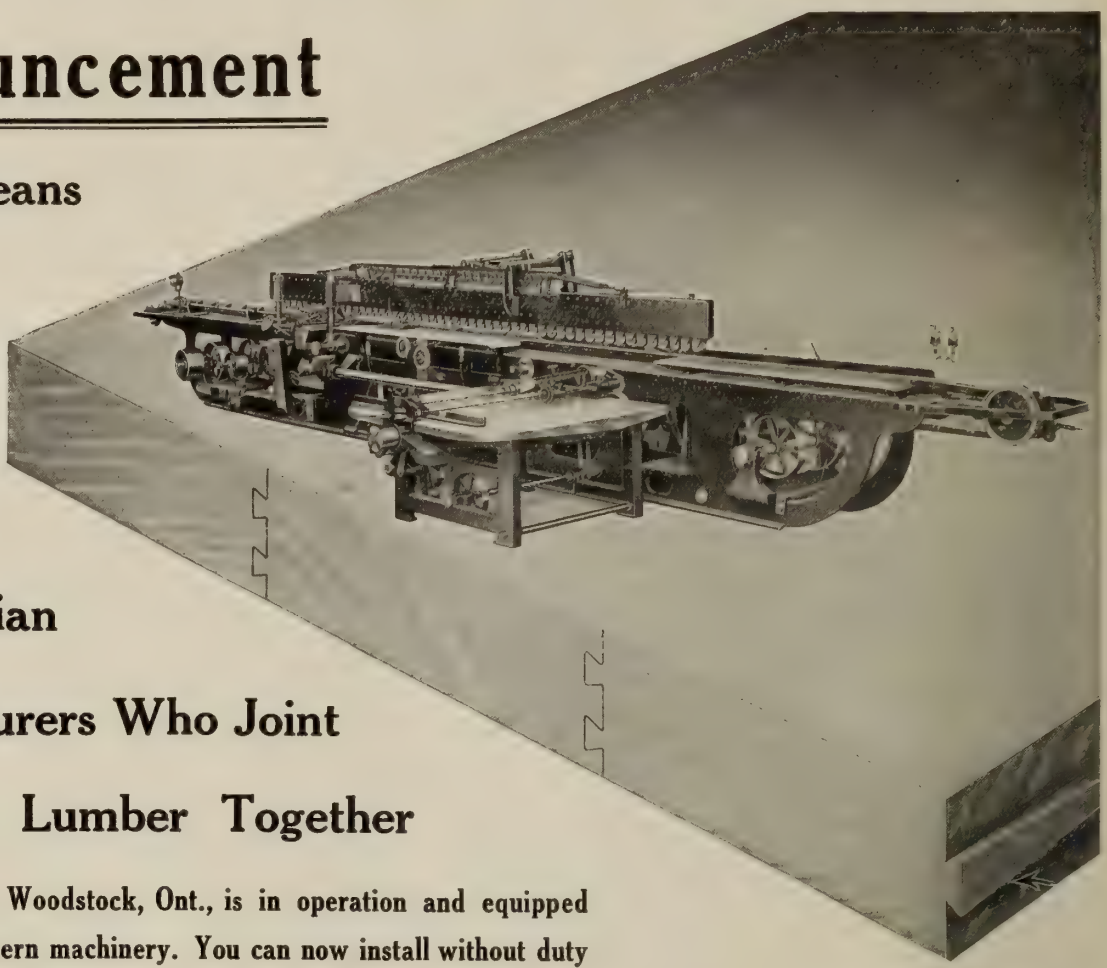
In construction this Head closely resembles the regular "Up-to-Date" and "Best of All" Cutter Heads which have been the standard tools for several years, but differs therefrom in the method of attaching them to the spindle; in the construction of the bit seats and of the Bit designed for faster cutting; in the greater strength of the holding bolts, and especially in the self-centering device which clings to the spindle when drawn up, securing it firmly thereto.

# Announcement

## Which Means

## Profit and Service

## To Canadian Manufacturers Who Joint or Match Lumber Together



**The large plant at Woodstock, Ont., is in operation and equipped with the most modern machinery. You can now install without duty**

**The**

## The Linderman Automatic Dovetail Glue Jointer and Matcher

No matter whether you are making packing boxes, panels, doors, chairs, or the finest solid furniture requiring a perfect varnish finish, the **Dovetail Glue Jointer** making the **Tapering Wedge Dovetail Glue Joint** will make your product stronger and at a cost of no more than one-half the ordinary jointing cost. It saves labor, lumber, and glue and several handlings. Wouldn't this machine be very valuable to your factory if you could save one-half of your present costs?

# Canadian Linderman Co., Limited

**WOODSTOCK, ONT. - MUSKEGON, MICH., U. S. A.**

# The Saw Mill

## Saw Brazing

I always use acid for brazing and file the ends to a feather edge, one saw tooth in length, and can make a braze you cannot find in small saws. If the braze happens to be soft, hold it over the light of a gas jet until it turns a straw color, then have a wet rag at hand and place it quickly over the braze.

I read in "The Woodworker," where a man uses the blunt end of the saw, without filing at all, and he says that filing is nothing but nonsense. You could find his braze without looking for it, which looks the best to you?

H. W. F.

## Jointing Circular Saws

If you are using a grinder with self-centering device and there is a self-centering device on the machine, there is no necessity for joining, but if your grinder is self-centering and the sawing machines are not, and the holes on the saws are large, the result will be that one-half the saw will be out of balance, causing excessive vibration, which is ruinous to boxes and good work.

In joining circulars, especially where the mandrel does not fit, care should be taken of the manner in which the saw is placed on the mandrel. Both collars should be marked directly over the centre of mandrel, and a scratch mark should be made on the saw, running directly through the centre and in the direction of the edge, preferably through the marker's name. The mandrel should then be turned so that the marks on collar are up, and the saw placed on it in such a manner that marks on collar and saw will coincide; the nut should then be tightened, not jambed.

The saw should then be jointed and filed, bringing the teeth to a point, filing mostly from the front of teeth, except where imperfect filing has affected the spacing of the teeth; then the backs may be filed, being careful to bring teeth to a point and not go below jointing circle.

If this method is followed, it matters not whether the saw fits the mandrel or not, provided you do not try to joint a saw with a 2-inch eye on a 1-inch mandrel. Be careful ever afterwards to place saw on as above described, and the centre of shaft will always be centre of saw when on machine.

H. E.

## The Looker On

By J. J. Blitz.

It is a peculiar fact that the reason that it is often impossible for us to see that little things that make or break in the race for financial success, it is because we are too near them; in other words, we haven't the perspective to see them in their proper inter-relationship with other details in the conduct of a business. It is therefore not unusual that the newcomer, the one to whom these details are new, will be more forcibly impressed with their use or uselessness than the man who has grown accustomed to them through long-continued familiarity.

It was from this standpoint that the "looker-on" operated, and to him, versed as he was in the ways of the factory, every little leak in the operation or management sounded as an insistent discord in rousing hum of busy machines. It was a revelation to follow him through an average factory and to see the seeming ease with which he grasped the system of operation in use, and the almost instinctive way in which he checked results against the time it took to produce them. He always seemed to know where the trouble was and where to find it, and so had come to be a kind of business doctor.

We will follow him through one of the average mill work factories, which rumor whispered was not making any money and didn't know why. First, he took in the size of the mill and the amount of yearly business, to get at the size of the business, and then check back on a kind of general estimate on the working force and equipment. In this particular case he found that with a working force of thirty men actively engaged in the production of the goods, there were eighteen men whose services did not contribute directly to the output, and he started in to investigate the eighteen.

He found one machinist, one oiler and one saw-filer, all doing work that could easily be done by one man, and not take up his entire time, either. He found one man whose sole occupation was cleaning up refuse from around saws and other machines. He also noticed that the roustabout labor going to waste for lack of a job was more than enough to take care of this refuse. If the roustabout had been given standing orders to clean up when out of a job, the factory would have been just as clean as it was. He found a shipping clerk, with two men trailing him around all the time, where in similar sized factories in other places he gets help when he needs it and the rest of the time handles his work alone.

He found three men whose occupation was bringing in about six to eight wagon loads of lumber a day. They didn't even have to haul away scrap; two other men attended to that; and it wasn't until he got interested in the cutting room that he began to understand why such a large proportion of the material went out as scrap.

When he started in to follow the stock through to the finished product, the first place he struck a leak was in the cutting room, where six men jimmied through work that two active cutters, with the aid of a boy, should have been able to do. In the first place, and old, superannuated man was in charge of the department, who spent perhaps half his time tailing one machine or another, and the rest of it bossing the job. He found the men hampered by an old, antiquated rip saw and two very unhandy cut-off saws, none of them fitted with gages, as they should have been. As a consequence nearly all the stock was trimmed on other saws before it went out. The waste of time thus caused could only be estimated, but is nearly always about double the time required to do the cutting in the first place.

The crowning leak of all was in the way the stock was cut, or rather slashed into, and if it wouldn't make what the bill called for, it was fired into the kindling box. Such a thing as saving door waste to rip up for sash stock, and saving sash waste to make baluster and spindle stock out of, was unheard of. Of course, when those orders came in they got them out of good stock. Besides, they didn't have time to fool with anything but orders. The

simple fact that it takes no longer to cut something good out of waste than it does to whack it up for kindling, was utterly disregarded.

He took in next the operation of jointing on on the edges. The jointer or buzz planer was squared up with a little block of hardwood. While beyond question that block was probably squared when first made, he had only to glance at the battered edge where it had been banged against the fence, to wonder whether it was still square. On trying, he found that both ends were not alike and each was out a trifle, and fell to wondering how much poor work it would cause before its inaccuracy would become obvious.

He found the sash and door department fitted with a splendid assortment of machines, that were turning out good work, although not as much by half as they were capable of. The item jotted down in his note-book was: "Grades stock too low; making tripple A doors for No. 1, and No. 1 for No. 2." While this does not look like a serious criticism, when he ran across a carload or two of rejected No. 1 stiles in the warehouse, that were perfectly up to the association grades, it did look as if there was a little something the matter.

The frame department was well fitted up, but not busy. The band sawyer, who had two band saws and a resaw to look after, was having an easy time of it, waiting for something to come to him. The carpenters and cabinetmakers were all busy. Indeed, this was the only department in the whole factory that really was not crowded with more than there was work for them to do.

All through the different departments there seemed to pervade a "Don't give a ——" expression, and he found by observation that there was not enough work in the mill to keep the force busy. Although the mill did a jobbing business strictly, no stock was made up beforehand. As a consequence of this, a larger force had to be kept to handle the orders in rush seasons, and this same force was more or less idle in slack times, degenerating in organization and quality of output.

Just to bring to mind the attention which the Looker-On scrutinized details on his general survey, I find his notes on the shavings system: "Exhaust system slightly overloaded; air never shut off from the idle machines; most of the gates missing, and no sweeping openings."

I have sometimes wondered, since my trip through with him, just how many things there are that, through our daily familiarity with them, we are unable to notice as being leaks for profits, that might, with a little attention, be remedied.

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## A Popular Tool

The great popularity of J. A. Fay & Egan Company's No. 61 Hand Planer and Jointer, is evidenced by the fact of its general introduction into the best woodworking shops in the land.

This machine is said to be remarkably simple. The accuracy, precision and superiority of work performed together with the immense saving over hand labor, has made it a universal favorite.

The manufacturers designed this machine for general jointing and rabbetting—planing straight or out of wind, cornering, chamfering, making glue joints and a great variety of similar work.

In its construction, the manufacturers have given special attention to the frame, casting it sufficiently heavy—making it perfectly free from vibration.

TABLES are planed perfectly true, and are each vertically and horiontally adjustable, independent of each other. They are mounted on inclines tongued into each other. Each incline has an independent micremeter adjustment, for perfectly aligning the tables. They can be instantly drawn away from cutter head on each side to facilitate the setting and sharpening knives and for swinging large cutters.

CYLINDER is of forged steel, four sided and slotted, running in reservoir self-oiling bearings. The manufacturers furnish their Safety Circular Cutter Head when ordered. This kind of head closes the opening between the tables and prevents serious danger to the operator.

FENCE bevels to 45 degrees, and is equipped with spring post for holding down material while passing over head.

The manufacturers invite you to write for their Circular Cutter-Head catalogue, also a large descriptive circular of their No. 61 Hand catalogue and Jointer. The proper address of the manufacturers is 153-173 W. Front St., Cincinnati, Ohio.

# The Power House

## Advantages, Operating Conditions and Applications of Small Exhaust Steam Turbines

A. Eugene Mitchel

Increasing the power of a plant where the requirements have outgrown its original capacity, but are not great enough to justify scrapping the old and replacing with new units is a trying problem that is often made easy by means of the exhaust steam turbine. This is well illustrated for instance in a mill deriving its power from a simple non-condensing engine, and in which the addition of machinery from time to time has increased the load on the engine beyond a practical limit. The owner can secure more power in three different ways:

First.—He can install a larger or additional engine which is an expensive proposition at best, requiring additional boiler capacity, perhaps involving expense for enlarging the buildings, and increasing labor and upkeep costs materially. Seldom can over 20 per cent. of the new expenditure be netted from the sale of the old apparatus, taking into consideration the installation costs, etc. Further, the power needs, unless the increase is large, do not usually warrant big expenditure.

Second.—More power may be secured by running the old engine condensing, but a condensing engine either simple or compound, and even when operating at the most economical point of cut off and otherwise under the best conditions can hardly deliver 20 to 25 per cent. more than when running non-condensing. The increase obtainable and practical will hardly be greater with a compound than with a simple engine, and in either cases the change may subject the engine to a constant load greater than that for which it was designed. Where this is true the overload is in time bound to prove injurious, and the economy improvement and power increase are partially counterbalanced by deterioration of the unit.

The Third Method.—That of changing the engine to condensing and utilizing the additional range of pressure drop to drive an exhaust steam turbine, is far more logical. In this way it is possible, not only to almost double the amount of power previously secured from the engine, but this is done without increasing the duty on the engine and without using more steam than before. Such an installation is illustrated in Fig. 1. The initial cost of the turbine and condenser per horse power is less than for additional boiler and engine capacity, but there is not the compulsion to buy more than may be required.

Fig. 2 shows a Kerr Exhaust Turbine, made by Kerr Turbine Company, Wellsville, N.Y. This machine operates with any steam pressure above 2 lbs. gauge at its inlet and exhausts into a vacuum of from 24 to 28 inches, utilizing exhaust from main engine, pumps, air compressors, etc.

The installation of such an exhaust turbine improves the economy most and offers the greatest capacity increase where the turbine and a suitable condenser are added to a simple non-condensing engine. For the smaller sizes the ordinary jet condenser maintaining 24 to 26 inches vacuum may be used with satisfaction. In larger units condensing apparatus maintaining higher vacuum is justified. A substantial improvement in economy and increase in capacity also result from the addition of an exhaust turbine to a simple condensing engine, and from the addition of turbine and condenser to a compound non-condensing engine. The exhaust turbine can also be utilized to advantage with compound or even triple expansion engines where increased capacity is important.

In general the steam economy of a single engine and exhaust steam turbine together is always an improvement over that which would be obtained by compounding and adding a condenser. The plant capacity is increased from 50 to 100 per cent. by exhausting through an exhaust turbine to condenser on a non-condensing engine, while the increase by adding the turbine to a condensing outfit is from one and one-half to three times that which could be secured from the condenser alone.

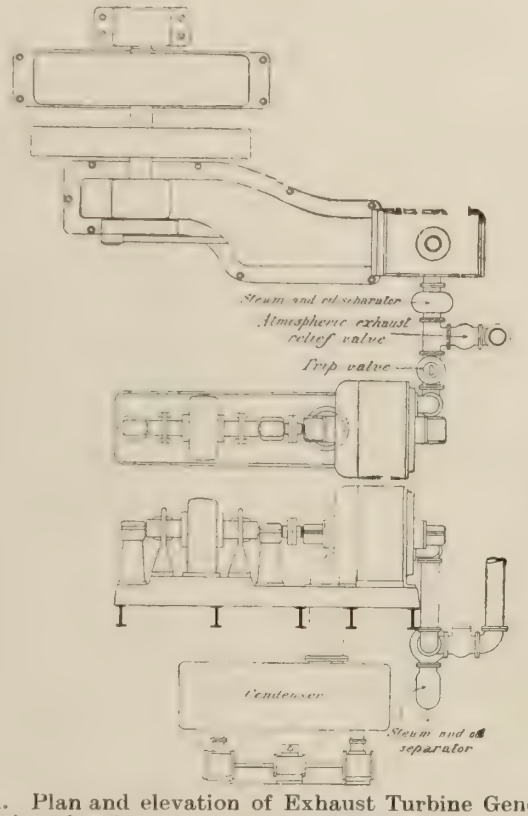


Fig. 1. Plan and elevation of Exhaust Turbine Generator Installation showing connections and relative proportion of the parts. Horsepower on engine, 300; horse power on turbine, 200.

As an engine and exhaust turbine installation takes no more steam than would the engine alone and under the same conditions as before, there is not an additional penny of expenditure necessary for boilers, chimneys, draft, coal handling apparatus, buildings and steam piping. The turbine and condenser, or turbine alone in a condensing plant, can be cut into the exhaust line without interfering with the engine, and usually without otherwise altering the layout of the plant. The installation of the turbine hardly affects plant operating costs as the turbine is adjusted at the factory, and seldom requires other attention than occasional lubrication and repacking of stuffing boxes. The oiler who has previously been taking care of the engine, can look after the

turbine, too, without any serious drain on his time, for the turbine should run constantly for months without shutdown.

An engine that has previously been running non-condensing, continues to exhaust at about the same pressure and carries the same load after the turbine is put into the exhaust line. A condensing engine can be adjusted to exhaust at atmospheric pressure, or thereabouts, and will be relieved of that part of the load assumed between atmospheric pressure and the vacuum while the turbine is being operated. The water of condensation will be discharged from the condenser at a temperature within two or three degrees of the theoretical and can be utilized in the usual ways.

In short, the increase in output obtained from a condensing reciprocating engine and exhaust turbine set is greater by about 25 per cent. than obtainable with any condensing engine alone, while the installation of turbine and condenser upon a non-condensing engine increases the output from about 40 to 100 per cent.

Power developed by an exhaust steam turbine is available for driving a generator, centrifugal or air pump, fan or any high speed machine, or for belt or silent chain driving, and under much the same conditions as that obtainable from high pressure turbines. Rigged up for

Fig. 2. 200 h. p. 5 Stage Exhaust Steam Turbine built for direct connection to centrifugal pumps.

belt or chain drive, the exhaust turbine delivers into the same line or jack shaft as the engine, in which case the turbine assumes an almost fixed proportion of the load. Figure 3 is a typical installation of this kind. The output of the turbine may be delivered entirely independent of the engine to drive belted auxiliaries or machinery of any kind, the speed requirements of the driven machine being perfectly met by a conforming pulley ratio.

An exhaust steam turbine may be arranged to carry a uniform or fluctuating load regardless of whether the load upon the engine, and consequently the source of steam supply to the turbine is constant, fluctuating or even entirely cut off for short intervals.

When operating in connection with an engine which is under constant load the turbine will, of course, receive its steam supply quite uniformly, save for the pulsations at the exhaust period. These in no way interfere with the action of the turbine. Under this condition of practically constant steam supply, the turbine will carry any or fluctuating load up to its maximum without governing device save an overspeed governor which merely keeps the speed below a predetermined maximum and prevents racing in case the turbine is suddenly relieved of its load. The steam supply of the turbine may be throttled where the load is uniformly light and the surplus exhaust steam from the engine can be discharged into an exhaust stack or sent to the feed-water heaters. As a rule, however, the exhaust from the auxiliaries in an ordinary plant furnishes all the steam required for heating the feed water, thus leaving the entire exhaust of the main engine available for use as required by the turbine. The matter of steam supply for the turbine is therefore very simple where the main engine is under constant load.

It usually happens, however, that the load up the engines, and consequently the steam supply for the turbine varies greatly at different times as in electric lighting or railway plants. In this instance there are several practical methods of maintaining steam supply to keep the turbine up to desired constant or maximum capacity.

The maximum output desired from the turbine may be small so that the steam supply from the engine exhaust is always ample, even at points of lowest engine load. The condition then, as far as the turbine is concerned, is about the same as previously explained in that the turbine may draw its supply from the exhaust stack, or direct from the engine, the surplus exhaust being discharged to atmosphere without affecting the operation of the turbine.

If, on the other hand, the turbine at times demands more steam than is available from the engine exhaust, as where the peak load of the turbine comes at the period of lightest engine load, the deficiency can be temporarily supplied by supplementing the live steam.

In many plants, such for instance as condenser installations, where the low pressure turbines are driving centrifugal pumps for circulating water, it is often desirable to start the condenser and produce the vacuum before the exhaust steam is available for the low pressure turbine, or that the vacuum be produced to enable the operation of the turbine with steam at atmospheric pressure. For such installations a mixed pressure machine lends itself equally to high pressure non-condensing, high pressure condensing, low pressure condensing, or mixed pressure condensing. Where a greater increase of plant capacity is desired than that brought about by using the exhaust steam available, a mixed pressure turbine solves the problem of utilizing the full amount of exhaust steam and automatically taking high pressure steam only in such quantity as is necessary to care for the load on the turbine.

Many industrial plants having engine-driven rope or belting desire additional power at some remote part of the mill. The mixed pressure turbine with a generator attached offers an easy solution. The turbine utilizes the exhaust of the main engine while the latter is operating and while requiring not a pound more fuel and no more labor, gives from 60 to 100 per cent. increased capacity. If it is desired to operate the electrical portion of the mill only, the turbine is then operated purely as a high pressure machine.

Where a high pressure Corliss engine has been installed with a view to later compounding when capacity must be increased, a mixed pressure turbine for belt drive can be more profitably installed than the low pressure side of the engine. First cost, economy of floor space and the ease with which the turbine and engine can be operated together or independently make such an installation attractive.

Where the turbine takes the intermittent exhaust from a number of pumps or engines a constant flow to the turbine can be maintained by putting a regenerator between engine and turbine. The regenerator acts as a receiver during the periods of excess supply, condensing the steam, and storing its heat to be utilized later in re-evaporating and producing a supply for the turbine during the period of deficiency. The regenerator thus cushions the engine pulsations and keeps a reserve steam supply right at the turbine ready to meet sudden demands.

An exhaust steam turbine is readily adaptable to driving an electrical unit in connection with either an engine-driven generating set or a reciprocating engine in other service.

It is quite practical, for instance, to utilize the exhaust from the engines of an electrical railway plant to drive turbines directly connected to generators that deliver into a lighting system, even if the peak load on the power generator comes at the same time as the minimum load on the lighting circuit, or vice versa.

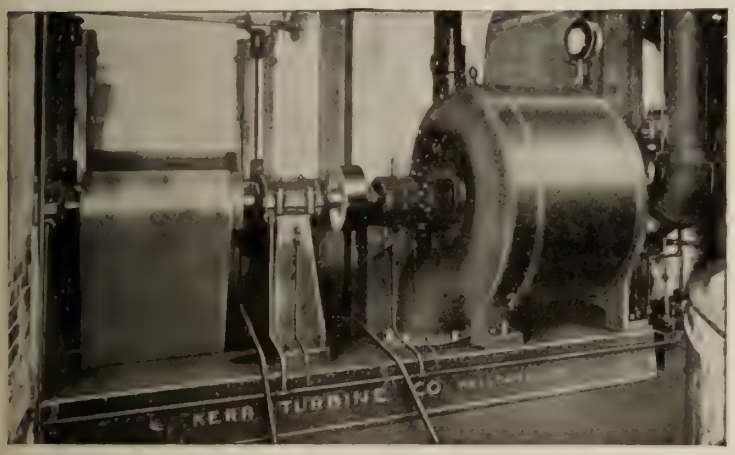

Fig. 3. Exhaust Steam Turbine in the plant of a paper company. This turbine develops 200 h.p. at 1,500 r.p.m. when supplied with steam at 3 pounds gauge and exhausting into a 26-inch vacuum. It is receiving the exhaust steam from a 20-inch by 42-inch Corliss engine and is belted to deliver into the same line shaft as does the engine. This engine when operating condensing delivered approximately 415 h.p., but with the exhaust turbine the outfit now develops 575 h.p. while using the same amount of steam.

It is frequently desirable to arrange generators on both engine and exhaust turbine to deliver into the same bus bars, in which case each of the generators assumes a practically fixed proportion of the load regardless of the total load variations. The advantage of this arrangement in providing an enormously increased capacity at the peak load is especially apparent in a lighting or railway plant. Remembering that the capacity of the turbine can be made to increase as the load on the engine increases, the total peak load capacity can be made at least from 50 to 70 per cent. greater than with the one generator alone and the engine running non-condensing.

Plants containing a number of engine-driven units can be equipped with an exhaust turbine for each engine and the additional power thus secured will carry the load with about one-half to one-third less steam, fewer engines in operation and the rest in reserve. A greatly increased output is possible with all engines in service, but without using more steam. Several engines may be made to exhaust into a large receiver separator, which in turn may supply the exhaust turbines and thus reduce the number of boilers under steam.

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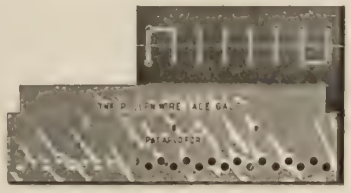

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# Furniture and Veneers

## Furniture Manufacturers Banqueting

Stratford, Ont.—Stratford, for the week Jan. 8th to 14th, was, indeed, the centre of attraction for furniture manufacturers and retailers with its exhibition of Stratford's Furniture Product.

On the evening of Jan. 9th, a banquet was held at the Mansion House which was attended chiefly by the manufacturers with their superintendents, foremen and travelers, Mr. H. W. Strudled, head of the Imperial Rattan Company, presiding, and the evening being marked by frank and beneficial interchange of thought.

A second banquet was held Jan. 10th at the same place, at which visiting retailers were the chief guests of the manufacturers and their travelers.

The menu card was very special, the cards being glued to thin veneered boards faced with maple or birch and being in every sense characteristic. It was headed "Stratford Combination Furniture Feed," and went on as follows: Oyster Cocktail—Tobasco Mahogany Sauce; Cream of Tomato Soup; Roast Turkey—Over Stuffed; Potatoes—Kiln-dried; Peas—Louis XIV.; Squash; Stratford Combination Salad, 3-ply Wafers; Fumed Plum Pudding—Sherryton Sauce; Early English Coffee; Antique Cheese; Circassian Walnuts; Queen Ann Olives. The cards were appreciated and will be prized as mementoes.

The banquet was followed by short speeches under the able chairmanship of Mr. George McLagan, beginning with local manufacturers offering welcome, followed by visiting retailers and others, with the travelers offering variation with songs, etc.

The exhibition marks installation of a new arrangement between the Stratford furniture manufacturers whereby they have joined forces to push Stratford-made furniture. That explains the "combination" and in connection therewith the Stratford furniture travelers will sell for all the Stratford furniture makers. This cannot fail to be a good thing for Stratford. It was stated by one of the speakers that the furniture factories of Stratford now employ well on to, if not quite, a thousand employees, and have an output valued at about one million dollars a year.

## William and Mary Furniture

One hears of William and Mary furniture, but few persons pay much attention to it; they think that the Dutch idea of artistic beauty were too solid and heavy to produce anything of great merit. But the Dutch craftsmen certainly brought over quite a new train of thought. Their designs were interpretations of the Flemish, Italian, French and Spanish schools, and they no longer held to the theory that oak was almost the only wood in which furniture should be made, as their predecessors had done. The William and Mary furniture is built of oak in most instances; but it is veneered with Italian walnut, and other woods are introduced in bandlings and marquetry. Some of the armchairs, with seats of velvet of brocade, are very handsome; the backs are beautifully carved and turned, the C and S scrolls being often in evidence.

The craft of the cabinetmakers was imbued with new life under the Orange influence. The King brought over many craftsmen from Holland, but their designs were very cosmopolitan, being borrowed from Spain, Portugal, Flanders and France. Moreover, they fired the ambition of British workmen, who had received a strong incentive from the beautiful designs of Sir Christopher Wren and his contemporary, Grinling Gibbons. The stretchers which kept the legs of the chairs firm and strong took a different form at this period. Previously they had consisted of straight bands or bars, but these were superseded by twocurved bands, with a small ornamental knob where they joined in the centre. This is called "tied stretcher work" and is typical of a genuine piece. It was used for cabinets and tables as well as for chairs.

The clock cases in the time of William and Mary were chiefly ornamented with marquetry, which was quite a Dutch invention. The favorite subjects was the bouquet and bird, but we also find the seaweed, cobweb, spider web and leaf design. Later on these clock cases were made in different sizes. To begin with, they were very tall, 10 feet being an average height, and then sometimes a hole had to be cut in the ceiling to allow the top to go on, or part of the case had to be cut away for the same reason; but during the 18th century clocks were made not exceeding five or six feet in height, and called grandmother clocks because the lady of the house could really reach them and wind them up herself.

During the reign of William and Mary lacquered furniture was greatly to the front. It certainly is an acquired taste—like cavaire—and, in my opinion, one piece in a room is quite sufficient. A clock case or a beautiful cabinet in this style may be reckoned as an art treasure, but too much of it would be oppressive and difficult to live up to. Of course, the original lacquer work came from the east, and in bygone years took the form of cases filled with tea or spices. These were mounted on adequately elaborate stands and used as cabinets. The black lacquer is not difficult to find, the red lacquer seems to be the most popular, but the green and pale brown lacquer are far more artistic, and the silver lacquer, which is certainly rare, can be accepted in any room without a fear of a discordant notes. Japan has sent us the most beautiful specimens of lacquer.

## Which is Best?

"Who can tell, briefly, which gives the best service in dry kiln equipment, the large kiln or one cut up into smaller compartments, and why?" That would depend on the nature, quantity and quality of the stock to be dried. By the smaller compartment system one can regulate the heat in any one compartment, to any degree desired or required. Should several lots be drying at once, it is not necessary to interfere with the heat or have such a system in our plant and it seems to give good results.—H.L.J.

A co-operative furniture factory will be established at Guelph, Ont., capitalized for $10,000 in $10 shares. The first claim on earnings will be 6 per cent. interest on the capital, after which all profits will be divided equally, half to go to form a rest fund and the other half to the employees. The city to allow the use of an old factory building and machinery at low rental.

# HYDRAULIC VENEER PRESSES

There is probably no machine used by the veneer manufacturer that plays as important a part in his equipment as the press. This is coming to be more generally conceded by those who have made the subject a study, and who have had a large experience with this class of work.

The great variety of work that goes to the press and the varying conditions under which it is performed, necessitates the use of a machine which will not only give a wide range of pressure, but which will also indicate with accuracy the pressure applied. First, the pressure must be determined that will give the best results on each kind of stock. This depends on the kind and thickness of the veneer, the kind of core stock and glue used and the way the stock in prepared.

The above conditions determine the amount of pressure per square inch to be applied to the stock. Then when the number of different sizes of panels to be veneered and the fact that each size of panel requires a different pressure directly in proportion to its area is considered, it can be readily seen that the press that will give the widest range of pressure is best adapted to the work. The Hydraulic press not only gives this wide range, but also enables the operator to gauge his pressure accurately. It can be readily seen that if the amount of pressure is of any importance in doing good work, a knowledge of the pressure applied and the ability to change it to accommodate each size of panel is of equal importance.

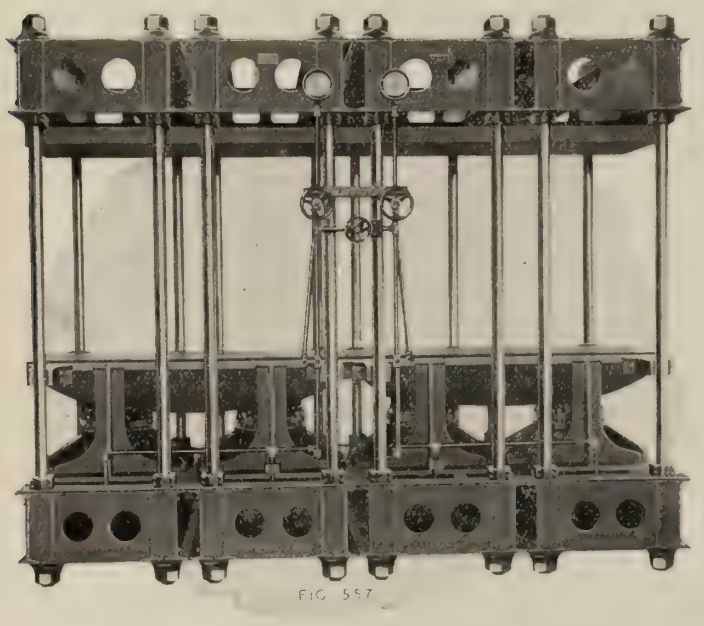

FIG 557

The next thing of importance is an even pressure for all parts of the panel. This is necessary to force the glue into the fibres of the wood and the surplus glue and the air from between the layers at all points. The importance of this is apparent to all manufacturers, but the accomplishment is a difficult problem to all who have not used the Hydraulic press.

A short description of the most satisfactory press for this purpose follows:

The press consists of a perfectly rigid steel frame, the beams and sills of which are built of structural steel of sufficient strength to stand the maximum pressure for which it is designed without any deflection. Under the beam and attached to them securely, is a steel pressure head planned perfectly true, which takes the pressure applied from below. The pressure is applied by means of one or more Hydraulic cylinder resting upon the sills of the frame, and a ram or piston working upward in each. The press is also equipped with a platen with a machined pressing surface on one side, and closely machined sockets on the other, into which the ends of the press rams are fitted.

The column or strain rods are cold rolled and polished steel shafts connecting the beams and sills, and also forming guides for the platen. The boxes on the platen which work on these columns, are babbitted, and thus a perfectly true rise of the platen is insured.

The power is communicated to the press by means of an independent high pressure Hydraulic pump, which can be located at any point and any distance from the press. The press is controlled by a valve, located conveniently on the side of the press and attached to one or two of the press strain rods.

The closing of this valve applies the pressure, and opening releases the pressure and returns the platen to its original position, ready to receive the package of stock for the next pressing. A pressure gauge located over the operating valve, enables the operator to apply any pressure up to the maximum for which the press is designed. An automatic valve prevents a pressure above the maximum from being reached. This valve can be set to different pressures, and thus obviates the necessity of any attention from the operator where a run is being made on panels of a certain size. By using a table showing the gauge pressure to be applied to each of the different sizes of panels, absolute accuracy can be obtained even by an unskilled operator.

With the press described, a number of styles of devices are used for retaining the pressure after it has been aptruck and retaining device. It consists of a truck with a flat top upon which the stock is built at the glue spreader, a clamping plate which is placed on top of the package of stock, and a number of adjustable rods which connect the truck and clamping plate, and hold the pressure on the stock until the glue sets. These trucks can be made to take a package of any height, the standard being 36 inches as this size package is easily handled both at the glue spreader and on the truck. These trucks are made to run either on the floor or on a truck, and are plied. The one in most general use is the combination guided into the press so that they are always in the centre. Trucks of different sizes for different size packages, can be used in the same press without any change in either the truck or press.

This method of handling stock is very economical as the stock is on wheels from the time it leaves the spreader until it is released from pressure at the point where it is to be worked, and requires no handling.

Another method of handling this stock is by means of a truck and clamping device independent of each other. With this system the package after being clamped and removed from the press, is lifted from the truck, and the truck is immediately used again for another package. This system is only satisfactory where the packages are very small, or where, on account of limited room, it is necessary to pile them on top of each other while the glue is setting.

The press shown on the accompanying cut is a four cylinder press, giving the pressure of 850 tons. Takes stock 52 inches wide, 173 inches long and 36 inches high. The platen is divided in the centre, making two indepen-

Continued on page 30.

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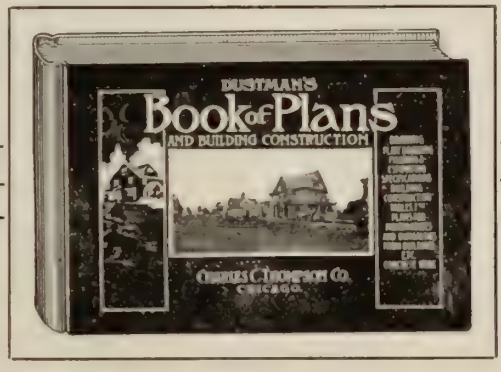


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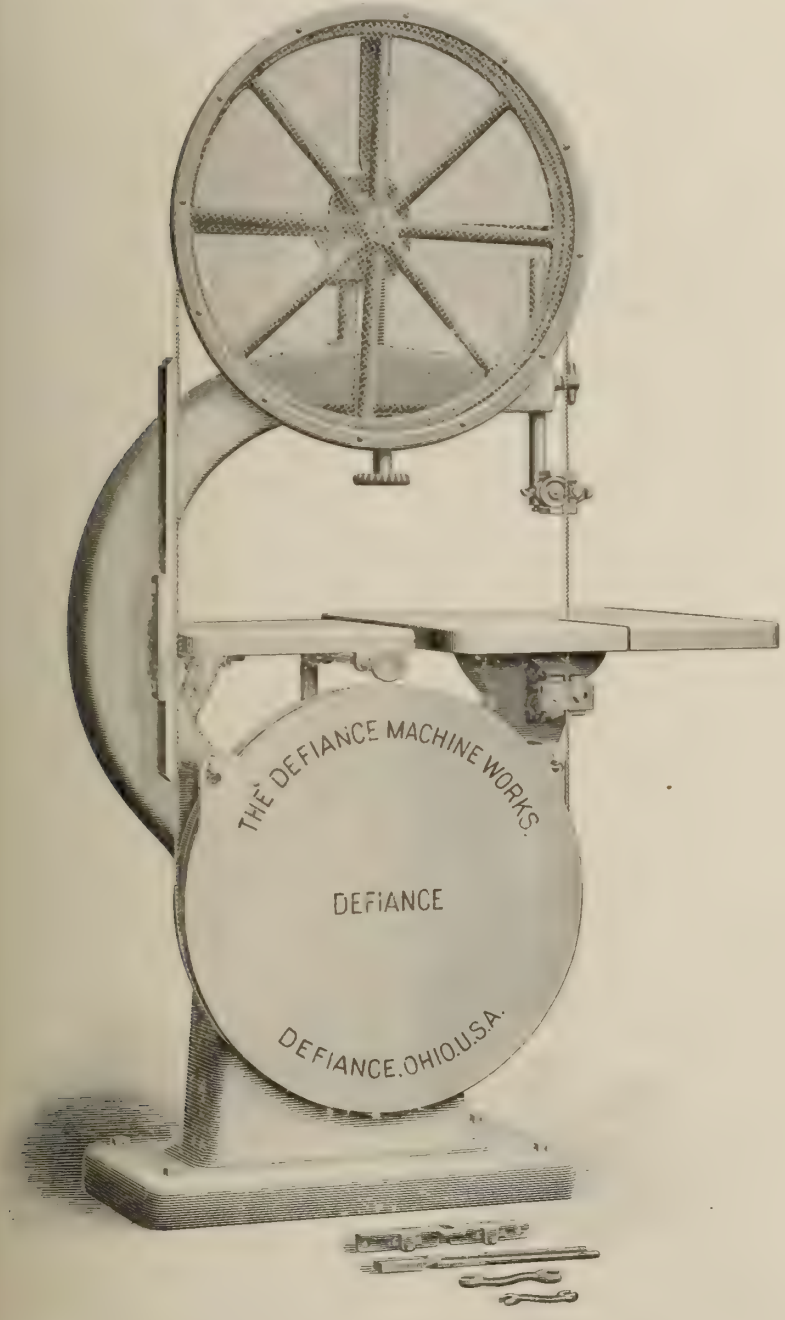
## New Band Sawing Machine

We show on this page an illustration of a new machine just lately put on the market by the Defiance Machine Works, of Defiance, Ohio. It is a tool which is particularly valuable for organ and piano manufacturers, also for pattern makers and woodworkers in general.

The frame is handsomely designed, cast in one piece, with cored centre, making it very stiff and reliable.




The wheels are 28-inch diameter, 11½-inch face, covered with pure rubber bands, ground true after fitting to the wheels and given a running balance, and are supported upon ground steel spindles of large diameter running in long bronze self-lubricating bearings of the reservoir system. The upper wheel is provided with a screened safety guard and the lower one is covered with solid iron disc to protect the operator.

The tension device, which is an ingenious affair, maintains automatically a uniform tension to the saw blade, so that light or heavy sawing in hard or soft wood can be accomplished without fear of the saw blade breaking or running off the wheel.

The table, of iron, is in one piece planed true, is 24-inch by 28-inch and can be instantly tilted to any angle to 45 degrees for conical or bevel sawing. The saw guides are of the patent non-friction type and they will not heat or injure the saw.

This machine will take material up to 12 inches thick and under, and the saw blade used is 14 feet 10 inches long, and it takes but one horse power to drive it.

## Special Privileges Secured

The Nova Scotia Saw Works, Limited, of Halifax, have secured from the city council all the special privileges which they asked. These include exemption from taxation for a period of 20 years, a civic loan of $125,000, at 4 per cent., and five million gallons of water per annum free of charge, with the right to take whatever quantity of water they need in excess of this amount, at the city's minimum rate. The company, which is the successor of the Silliker Car Company, has orders on hand for 1,750 box cars. An extension of the plant will be made at once so as to enable the company to keep up with their orders.

## Bought Timber Limits

A large timber deal was completed at Sherbrooke, Que., recently when the Brompton Pulp and Paper Company took over the timber limits of Mr. T. M. Craig in the townships of Whitton and Winslow, and also his saw-mill at Reedsville. The limits extend to about five thousand acres, and are splendidly wooded land. While the purchase price has not been given out, it is understood that it amounts to considerable over $60,000. The Brompton Pulp and Paper Company have also acquired the limits of the Emberton Lumber Company, along the Salmon River. These extend to between 2,500 and 3,000 acres. The purchase price has not been given out.

## New Defiance Catalogue Issued

We have received from the Defiance Machine Works, Defiance, Ohio, a copy of their new No. 200 catalogue, which covers completely their line of woodworking machinery.

In conjunction with the catalogue is a domestic price list, No. 200, which gives a price for every machine shown in the big book. The two together form the handiest and most useful piece of literature for the woodworker.

The catalogue in all contains 530 pages, and is bound exceedingly well, with a good stiff cover, to stand rough usage in the shop. Each machine has one or two pages devoted to it, giving a good illustration and a complete description of its various points and uses to which it may be put.

This book is really indespensible to any woodworker.

## Hydraulic Veneer Presses

(Continued from page 26)

dent platens, each supported by two rams. By special arrangement of valves, each platen can be operated independently of the other, making two distinct and complete preses, each capable of taking stock 52 inches wide and 82 inches long, or both platens can be operated together, making one press taking stock 52 inches wide and 173 inches long.

This press is designed for the export trade by The Hydraulic Press Manufacturing Company, Mount Gilead, Ohio, who have a large demand for them in the east, particularly in Russia and Siberia.

This is but one of many styles of presses manufactured by this company for veneer purposes. Their list of Hydraulic veneer presses at present number 183, ranging in size from 35 tons to 900 tons pressure capacity, and taking stock from the smallest size up to 5 inches wide and 15 inches long. They also design and build a great many veneer presses to meet peculiar conditions.

## A Belt's Queer Antics.

We frequently see belts do funny things. We have a new 5-inch single leather belt, one of a pair driving a large smoothing planer, and I think it takes the cake. It was carefully put on, the joint cut squarely. It ran about two days, then began going to the bad. One side stretched till it must have been 3 inches longer than the other, and then it took a flop over, of its own accord, so half of i twas running on the pulley side and the other half of it was running on the pulley like this for a few minutes it gave another turn in the same direction, so there was a complete twist, the belt running with the hard side on both pulleys and having a complete twist on both sides. Now, if four men had tried to turn that belt into that position they would have failed. Another peculiar feature was that the other belt on the same machine was cut out of the same roll and next to the bad one, but ran perfectly, giving no trouble. These belts are No. 1 oak-tanned.

I find that belts are frequently to blame for the trouble with bearings, even though they are not tight, but simply because they do not run steadily, jumping and pounding and dodging sideways. I had a splendid bearing, 10 inches long, on a surfacer, that had been running perfectly, begin to heat owing to the belt getting out of shape—longer on one side than the other. The belt was not tight. We tried every way to stop that heating, but it kept getting worse. I made up my mind I would not ruin that bearing just for the sake of humoring that belt, so took it off and put a new one on. After that there was no trouble.

## Which Was Right?

Two excellent workmen, who have made good and are perfectly secure in their positions, and could easily get others if they wanted them, were interviewed as to their methods and attitude during working hours, and made remarkably different explanations.

One said: "I am not much on religion; that is, I am not given much to religious expression or quotation, but in a way I do put some of the religious doctrine into practice. When I am at work I try to imagine that the proprietor is looking at me every minute of the day, and so pursue my duty and do my work as I would do if he were standing right behind me looking over my shoulder all the time. In following out this practice I find it keeps me from shirking, often from doing things that I would be ashamed of, and from trying to hide and cover up errors. Instead of trying to conceal an error, I try to make amends the best way I can, just as the proprietor would want me to do if he were standing right by looking on. In other words, I use my mental faculties and keep the proprietor present in spirit all the time, just as if we were working together. And the result is, no matter just when he comes along or what he catches me doing, there is no surprise and no embarassment. Also, I find at the end of the day that I have done better work and more of it than I would be inclined to do if I considered myself alone and frre to do as I pleased."

"How do I do my work? What kind of spirit do I take with it?" said the other man. "I will tell you. It may be a secret, but it is a simple one. I simply place myself in the attitude of doing the work for myself. I forget that I am working for anybody else or for any other purpose than to do my work in any other way than I would do it if I woned the institution, or at least that part of it concerned with the work I am doing. I forget all about the proprietor, the time of day, and everything else. I simply think of my work and myself, and do it just as if it were mine directly and I would be directly affected by any misdeed and would be directly benefited by every good thing I do. In this way I find the time passes rapidly. If the boss comes by and sees me, I don't know it, don't care, and don't think anything about it. I go ahead doing the thing as I would do it for myself, in the best way I know. Consequently my conscience is always free and I never have any objections to the boss or anybody else looking on."

Now, which of these men was right, or were they both right, and does it depend on a man's mental construction as to what attitude he should assume toward his work? Both were good men, both were making good. Here we find one picturing mentally his proprietor looking at him all the time; the other going to an exact extreme, forgetting that there is such a thing as a proprietor and assuming that he himself is the man most intimately concerned. Evidently there are some good points in both attitudes, and probably they will appeal differently to different people.

HARRY HARLAND.

## A Peculiar Saw Accident.

I was recently told of the first serious accident with a band scroll saw of which I ever heard. The saw broke, and, as is quite often the case, one end tangled in a lower wheel. As is not often the case, the other end took a turn around the operator's neck. A deep gash was cut all around, laying bare, but not cutting, the jugular vein. Though such an accident is of very rare occurrence, one can readily see how it might happen; and, happening, be fatal. Most of us who like to see work jog along briskly, and who mayhap have operated machinery for years without accident, are prone to hold back a little in the matter of the adoption of safety devices. Some such devices are something of a nuisance till one gets accustomed to them; and, perhaps, after one has been long enough in the business to become "real sot" in his ways, it doesn't matter whether he adopts them or not. A young man, however, might well be willing to waste a little time in adaptation, rather than take the chance of having his head prematurely sawed off.

Hobo.

A Canadian forestry convention will be held in Quebec on January 18th, 19th and 20th, under the auspices of the Canadian Forestry Association, to discuss forestry problems.

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**BELT FASTENERS.**
Sadler & Haworth, Montreal.

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J. A. Fay & Egan Co., Cincinnati, O.
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C. & B. Holmes Machinery Co., Buffalo, N.Y.
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Berlin Machine Works, Ltd., Hamilton, Ont.
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Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Valley City Machine Works, Grand Rapids, Mich.
Baxter D. Whitney & Son, Winchendon, Mass.
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Canada Machinery Agency, Montreal.
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**CHISELS.**
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.

**CIRCULAR SAW MILLS.**
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
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**CHAINS (Silent).**
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**CLAMPS (Chain, Carpenter, Cabinet, Pattern Makers, Bench, Mitre, Piling, Mounted and Rotary Wheel).**
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Shurly Dietrich Co., Ltd., Galt, Ont.
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**CLUTCHES.**
J. A. Fay & Egan Co., Cincinnati, O.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

**COLUMN CLAMPS.**
Black Bros. Machinery Co., Mendota, Ill.

**COLUMN MACHINERY.**
J. A. Fay & Egan Co., Cincinnati, O.
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J. A. Fay & Egan Co., Cincinnati, O.
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**CUT-OFF SAWS.**
Shurly Dietrich Co., Ltd., Galt, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
Simonds Canada Saw Co., Montreal.
R. H. Smith C., Ltd., St. Catharines, Ont.
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Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
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Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Samuel J. Shimer & Sons, Mitton, Pa.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

**DADO HEADS.**
C. Mattison Machine Works, Beloit, Wis.

**DISK GRINDERS.**
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.

**DOGS (Saw Mill).**
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.

**DOVETAILING MACHINES.**
Berlin Machine Works, Ltd., Hamilton, Ont.
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J. A. Fay & Egan Co., Cincinnati, O.

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Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Valley City Machine Works, Grand Rapids, Mich.
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**DRILLS (Automatic Hand).**
North Bros. Mfg. Co., Philadelphia, Pa.

**DRILLS (Reciprocating).**
North Bros. Mfg. Co., Philadelphia, Pa.

**DRILLS (Breast).**
North Bros. Mfg. Co., Philadelphia, Pa.

**DRYING MACHINERY.**
Canada Machinery Agency, Montreal.
Sheldons, Ltd., Galt, Ont.

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Canada Machinery Agency, Montreal.
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**DUST SEPARATORS.**
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Simonds Canada Saw Co., Montreal.
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Mussens, Ltd., Montreal.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
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Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
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Canada Machinery Agency, Montreal.
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Samuel J. Shimer & Sons, Milton, Pa.
Baxter D. Whitney & Son, Winchendon, Mass.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

FLINT.
Wausau Quartz Co., Wausau.

FLUTING HEADS.
J. A. Fay & Egan Co. ,Cincinatti, O.

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Canada Machinery Agency, Montreal.
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Mussens, Ltd., Montreal.
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Canada Machinery Agency, Montreal.
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GAUGES (Saw).
Shurly Dietrich Co., Ltd., Galt, Ont.
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Black Bros. Machinery Co., Mendota, Ill.
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Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Falls Machine Co., Sheboygan Falls, Wis.

GRINDERS (Knife, etc.).
E. C. Atkins & Co., Hamilton, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
T. A. J. Burton Saw Co., Ltd., Vancouver, B.C.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
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GRINDERS (Tool).
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Valley City Machine Works, Grand Rapids, Mich.

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J. A. Fay & Egan Co., Cincinnati, O.
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HAND PROTECTORS.
J. A. Fay & Egan Co., Cincinnati, O.
Jones Safety Device Co., Hamilton, Ont.

HAND SCREWS.
Black Bros. Machinery Co., Mendota, Ill.
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Sheldons, Ltd., Galt, Ont.

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Ober Mfg. Co., Cragrin Falls, O.
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Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.

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Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

JOINTERS.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

KNIVES (Planers and Others).
Shurly Dietrich Co., Ltd., Galt, Ont.
E. C. Atkins & Co., Hamilton.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.
Samuel J. Shimer & Sons, Milton, Pa.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

LACE LEATHER.
Sadler & Haworth, Montreal.

LAST MACHINERY.
Canada Machinery Agency, Montreal.

LATHES (Pattern Makers').
Berlin Machine Works, Ltd., Hamilton, Ont.
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Valley City Machine Works, Grand Rapids Mich.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

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Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
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Hespeler Machinery Co., Ltd., Haspeler, Ont.
C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Plessisville Foundry, Plessisville, Que.
Valley City Machine Works, Grand Rapids, Mich.
Baxter D. Whitney & Son, Winchendon, Mass.
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Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
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C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
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Samuel J. Shimer & Sons, Milton, Pa.
Baxter D. Whitney & Son, Winchendon, Mass.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
Black Bros. Machinery Co., Mendota, Ill.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie Co., Ltd., Toronto.

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Mussens, Ltd., Montreal.
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The Goldie & McCulloch Co., Ltd., Galt, Ont.

QUARTZ.
Wausau Quartz Co., Wausau.

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Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
Simonds Canada Saw Co., Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinatti, O.

Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

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J. A. Fay & Egan Co., Cincinnati, O.

RIP SAWING MACHINES.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

ROLLER BEARINGS.
Mussens, Ltd., Montreal.

SAFETY GUARDS (For Band Saw Machines, Jointers, Rip Sawing Machines, Shapers, Swing Saws, etc.).
The Jones Safety Device Co., Ltd., Hamilton, Ont.

SANDERS.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
J. M. Nash, Milwaukee, Wis.
Ober Mfg. Co., Chagrin Falls, O.
Plessisville Foundry, Plessisville, Que.
Fisher Sander Co., Berlin, Ont.
Black Bros. Machinery Co., Mendota, Ill.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

SAND.
Wausau Quartz Co., Wausau.

SANDPAPER.
Black Bros. Machinery Co., Mendota, Ill.

SANDERS (Moulding, Belt and Panel).
Black Bros. Machinery Co., Mendota, Ill.
H. W. Petrie, Ltd., Toronto.

SASH, DOOR AND BLIND MACHINERY.
Berlin Machine Works, Ltd., Hamilton.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
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H. W. Petrie, Ltd., Toronto.

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Berlin Machine Works, Ltd., Hamilton, Ont.
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The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
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Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
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VISES (Circular Saws).
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Baxter D. Whitney & Son, Winchendon, Mass.

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Plessisville Foundry, Plessisville, Que.

WORK BENCHES.
Canada Machinery Agency, Montreal.
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# After the Whistle Blows

### To Make Sure.

There was a young man from the city,
Who saw what he thought was a kitty.
To make sure of that
He gave it a pat;
They buried his clothes—what a pity.

### The Knocker.

Kicker—My great-grandfather carried that drum all through the revolution.

Snicker—And whenever he sighted the enemy he beat it, I suppose.—Brooklyn Life.

### Something New

Father—"What did you learn to-day?"
Boy—"I learned sumthin' called guzzinto."
Father—"Guzzinto?"
Boy—"Yep."
Father—"Well, whatis is guzzinto?"
Boy—"Why, 2 guzzinto 4, and 4 guzzinto 8."

### Obey Orders.

Carpenter—"Didn't I tell you to notice when the glue boiled over?"
Assistant—"I did. It was quarter past ten."

### Stung.

Knicker—"I say, Bocker, if you are setting on a donkey's back, what fruit do you resemble?"
Bocker—"I don't know."
Knicker—"Why, a pear, of course."

### Fully Identified.

One day a big city bank received the following message from one of its country correspondents: "Pay twenty-five dollars to John Smith, who will call today." The cashier's curiosity became suspicious when a cabman assisted into the bank a drunken "fare" who shouted that he was John Smith and wanted some money. Two clerks pushed, pulled and piloted the boisterous individual into a private room away from the sight and hearing of regular depositors. The cashier wired the country bank:

"Man claiming to be John Smith is here. Highly intoxicated. Shall we await identification?"

The answer read: "Identification complete. Pay the money."

### Repartee.

A well known humorist expressed the opinion that the keenest repartee, after all, was the half unconscious sort that sprang so whole-heartedly from the masses. Here is a story that he tells in support of his theory:

A woman who had been selling fish entered a street car with an empty basket on her arm, still giving forth an unmistakable odor of the finny tribe it had carried. She took a vacant seat next to a young man, a noticeable "swell," who drew his coat tails away and plainly showed his disgust.

"I s'pose," remarked the woman presently, "that you'd rather there was a gentleman sitting beside you?"

"Yes, I would," was the instant reply.

There was a moment's pause, and then she looked up at him and said: "So would I."

### An Appropriate Place.

In Zanesville, Ohio, they tell of a young widow who, in consulting a tombstone maker, with reference to a monument for the deceased, ended the discussion with:

"Now, Mr. Jones, all I want to say is, 'To My Husband' in an appropriate place."

"Very well, ma'am," replied the stone-cutter.

When the tombstone was put up the widow discovered, to her amazement, that upon it were inscribed these words: To My Husband. In An Appropriate Place.

It is the same factory whistle blowing at quitting time in the evening that blows for starting time in the morning, but just think of the difference in the effect it has on one's feelings! It is the same way with things said; the same things, said at different times, may have varying effects.

### A Recipe for Mince Pie.

David Belasco, playwright and theatrical manager, tells this tale of the days when he was a newspaper reporter. While so employed, he put in a few days with a gang of tramps in order to get "color" for an article he had been assigned to write.

"I found the hobos to be a talkative lot, with as many stories as the end man of a minstrel show. One of them told in my hearing of having been given a mince pie by the young wife of a farmer. Next day the tramp appeared at the farmhouse again and said, 'Would you be kind enough, ma'am, to give me the recipe for that there mince pie, what I had here yesterday?'

" 'Well, the idea!' cried the farmer's wife. 'Land's sakes, man, what do you want that recipe for?'

" 'To settle a bet,' replied the tramp. 'My partner says you use three cups of Portland cement to one of molasses, but I claim it's only two and a half.' "

### Undesirable Citizens.

An American who spends much of his time in England tells of a cockney who went to a dealer in dogs and thus described what he wanted:

"Hi wants a kind of dog about so 'igh an' so long. Hit's a kind of gr'y'ound, because 'is tyle is shorter nor any o' these 'ere gr'y'ounds, an' 'is nose is shorter, an' 'e ain't so slim round the body. But still 'e's a kind o' gr'y'ound. Do you keep such dogs?"

"We do not," said the dog man. "We drowns 'em."

### Foiled.

He was very bashful and she tried to make it easy for him. They were driving along the seashore and she became silent for a time. "What's the matter?" he asked. "Oh, I feel so blue," she replied. "Nobody loves me and my hands are cold." "You should not say that," was his word of consolation, "for God loves you, and your mother loves you, and you can sit on your hands."

# "Amphibia"

**Waterproof**

# Leather Belting

is made to do hard work in a wet place better than any other Belt. Let us prove it to you by sending a Belt on trial.

We always carry a full stock of all kinds of Leather Belting.

## Sadler & Haworth

**Montreal - Toronto**

**The New Slow Speed**

# Sheldon Exhaust Fan

**The Fan that is revolutionizing the Shaving Exhaust Business**

It will handle wet or dry, long or short shavings and sawdust, and will do this work with a guaranteed reduction in speed of from 25% to 40% less and with a power consumption of 30% to 35% less, than any other exhaust fan. The Casing is very similar to that formerly used, but the wheel is of an entirely different design.

**Let us tell you more about it**

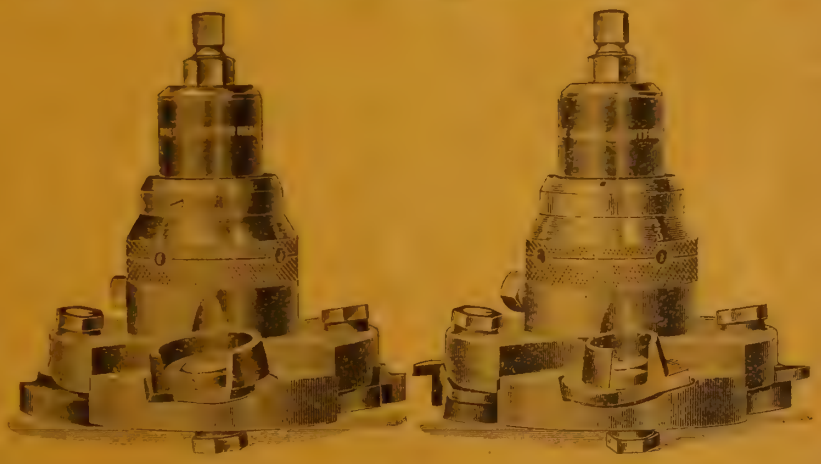
## SHELDONS LIMITED - Galt, Can.

# The Shimer Cutter Heads and Special Tools

## Cost Reduction

Business men everywhere are giving attention to reducing cost of manufacturing by installing labor-saving and time-saving tools.

The Shimer Cutter Heads remove many of the troubles and worries incident to the business of the machine woodworker and place in his hands the power to increase his productive capacity in the manufacture of flooring, ceiling, wainscoting, door and sash patterns, etc., besides saving much of the material that formerly reached the offal pile.



Examine our catalogue and see if there is not some tool you need to help in the work of cost reduction. If your work is special write us about it. Almost every week we adapt the Shimer Cutter Head to the making of Specialties, or design some new fixture to further its usefulness.

We make a number of Heads for special purposes. For any design of material you get out in quantity let us give our estimate on the Head to do the work. Our prices are uniformly low—our goods of best quality.

**See that you get the genuine.**—Look for the NAME and TRADE MARK **"The Shimer Cutter Head"** stamped on every Head we turn out. A dealer who would sell you an imitation means to deceive you—send them back and demand the genuine article with our guarantee for your protection.

**Branch of Milton, Pa.** **Samuel J. Shimer & Sons,** **Galt, Ontario, Can.**

Take any timber—it may be oak or walnut—hickory or ash—poplar or redwood—spruce, pine or gum, any kind of wood hard or soft—it may be green or seasoned—dry or damp—warped, twisted, unevenly sawed, and feed it through a Whitney Planer, single or double surfacer and you will obtain best results.

"Best Results" mean a planed surface that will be absolutely smooth, boards that will not have clipped ends, or knots and splinters torn out—it means more fine planing in the least time—finally it means, that planing lumber on a Whitney Planer, costs less, than if planed on any other single or double surface planer built, and we can prove it.

# Baxter D. Whitney & Son

**Winchendon, Mass.**

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**Pacific Building, Seattle, Wash.**

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# CANADIAN WOODWORKER

Vol. 9 Toronto, February, 1911 No. 2

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## Shaper Guards

Protect the Operator and
SAVE DAMAGE SUITS

Endorsed and recommended by all Factory Inspectors.

Write for Prices and full Particulars, Free

Fair Mfg. Co., Racine, Wis.
BOX

## A Machine You Should Know About.

Patent Fitting Tilting Saw

We want to tell you about this new machine of ours, because it's a good thing. We say it's the best on the market and we would like you to take us up and let us prove it.

Drop Us a Card

THE SOUTHAMPTON IRON WORKS
Southampton, Ont.

From

## Nova Scotia to British Columbia

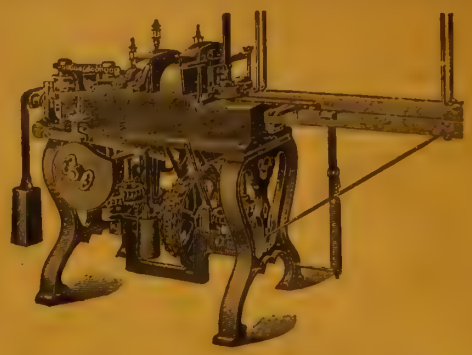
**Burton's** Saws are to be found in Mills, large and small.

We can tell you, or show you, good reasons, for this wide-spread sale.

Ask the Millman down street what he thinks of our saws, and if he is a user, he'll prove to be our best salesman.

Let us send you some facts about saws in general, and Burton's Saws in particular.

THE A. J. BURTON SAW CO. Limited, VANCOUVER, B.C.



# This is a Cut of the No. 10 Ober Lathe

for turning Fork, Hoe, Rake, Mop, Broom and Ice Hook Handles, Pike Poles, Tent Poles, Trolley Poles, Curtain Poles, Chair Bows, Dowels, Rods and Similar Work.

**Simple—Strong—Durable—Economic**

We also manufacture other Lathes for making Spokes, Handles and Variety Work; Sanders, Shapers, Boring and Chucking Machines, etc., etc.

Complete Catalogue and Price List Free.

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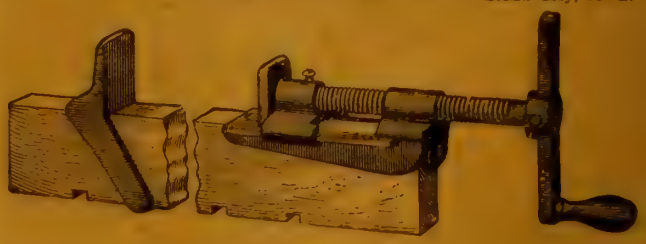
# Clamp Fixtures, Per Set, 50 Cents

Gentlemen :—We are pleased to state that the 25 dozen Patent Maleable Camp Fixtures which we bought of you a little over a year ago are giving excellent service. We are well satisfied with them and shall be pleased to remember you whenever we want anything additional in this line.

Yours truly, CURTIS SASH & DOOR CO.,
Sioux City, Iowa.



No. 1

SHELDON'S

STEEL BAR CLAMPS

The bars of our STEEL CLAMPS are especially tempered and guaranteed indestructable. Screws and fitting quickest possible action and made to stand any service or abuse. Don't fail to test sample of this clamp before you buy elsewhere.

**Over 26,000 of our Steel Rack Guaranteed Vices**

now in use. We solicit the priviege of submitting samples of these specialties on terms that will be attractive to rated firms. Write for list and prices.

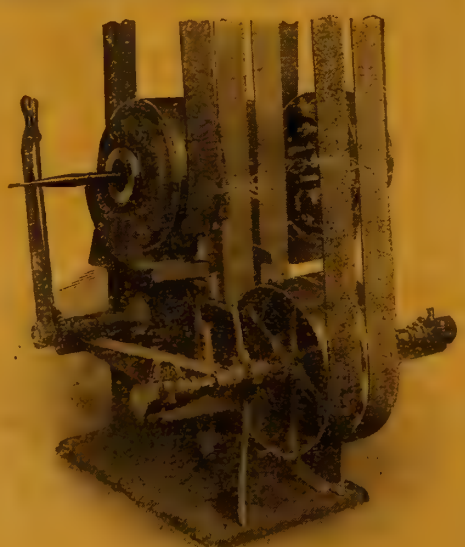
RAPID-ACTING WOODWORKER'S VISE No. 3

**E. H. Sheldon & Co., 326 N. May St., Chicago, Ills**

# Suppose I made you a present of a Nash Automatic Sander

**to be delivered in three months ?**

You would jump at it, wouldn't you ? Suppose you buy one today, and it saves its cost in three months ; what is the difference ?



The

## Sander

For
Chair Stock,
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Shade Rollers,
Whip Stocks,
Canes,
Ten Pins,
Veneered Columns,
Broom Fork,
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Shovel Handl
and other
Round Work.

It has saved its cost in three months for others, why not let it do this for you ?

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**Carborundum Knife Grinding Wheels have cut their way into favor in many of the most prominent wood working establishments in the country**

They not only do twice the work of any other grinding wheels—but they do it better and cleaner. They stand up well—do not burn the work—do not draw the temper even from the finest steel. Require almost no attention and last much longer than other abrasive wheels.

**THE CARBORUNDUM COMPANY**

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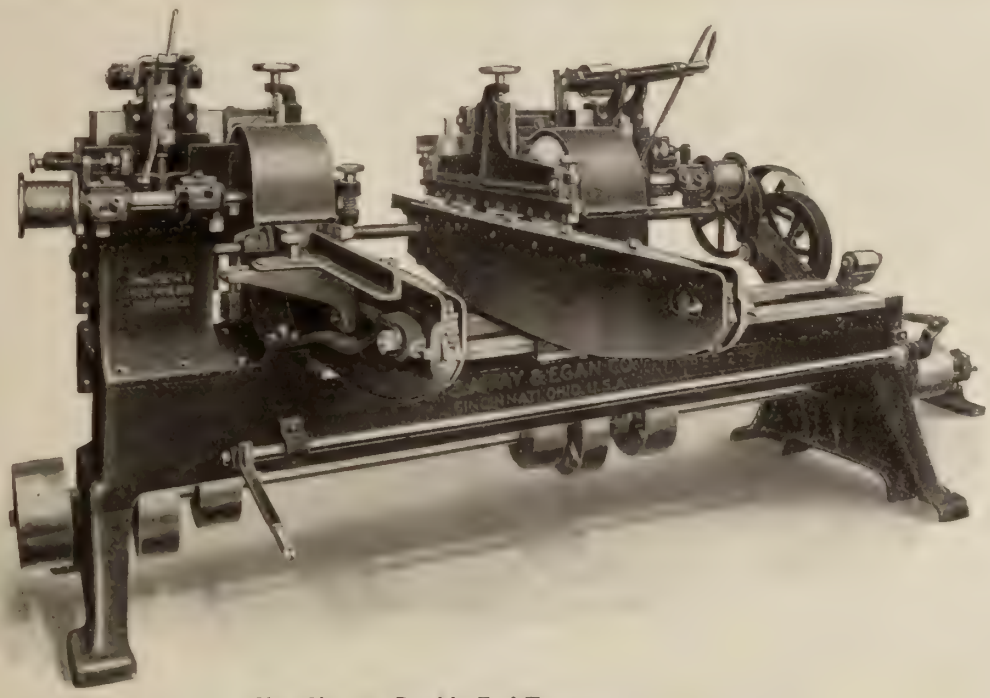

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# Reasons Why Our New Double End Tenoner is the Best.

1st. Its wide range—working from 4½″ to 60″, 84″ and 100″ long and 20″ or 33″ wide.

2nd. Stock carried on slides instead of chain.

3rd. Feed chain is so constructed as to eliminate slipping and excessive wear.

4th. Moving column is gibbed to front wall of bed—not across—preventing springing of bed.

5th. Moving column operated by rack and pinion insuring quick and accurate adjustment.

6th. One countershaft only and that in centre of base, out of way of operator.

7th. Pressure Bars close to heads and directly over line of stock.

8th. Accessible Tenon head belt binder on top of column.

9th. Micrometer cross-adjustment to cut-off saw.

10th. Very heavy cope construction.

11th. Gravity belt binder.

12th. Cross-adjustment to pressure bars.

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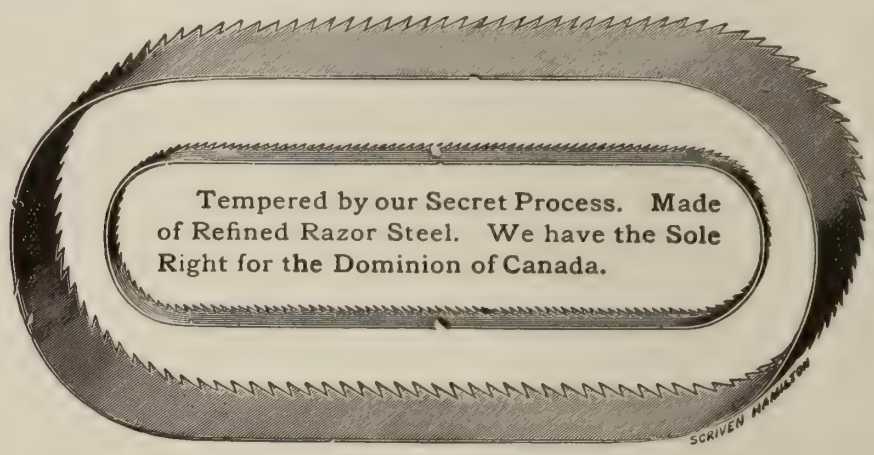
**Shurly & Dietrich, Props.** **GALT, Ont.**

LARGEST SAW MANUFACTURERS UNDER THE BRITISH FLAG

We manufacture
Circular Saws
Gang Saws
Mill Saws
Band Saws
Cross Cut Saws
Buck Saws
Saw Setts
etc.



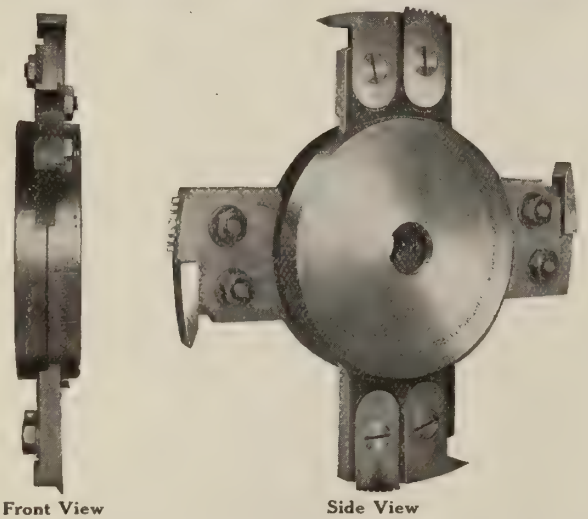

**"Maple Leaf" Saws** are the best-tempered saws made

We manufacture high-grade **Band Saws** of all Widths and Lengths

These Saws are made of Refined Razor Steel, and Tempered by our Secret Process; for Fine Finish and Temper are not excelled.

We are the only manufacturers in the world who export Saws in large quantities to the United States

## A Matter of Adjustment



Front View Side View

**THE Hall Adjustable Dado or Grooving Head** adjusts to the fineness of 1/64 of an inch and can be adjusted for any size groove within the scope of the Cutter in half a minute.

These adjustable features are peculier to the "Hall" and are entirely novel

There is no manipulation of bolts, screws, washers or nuts in making the adjustment, which means there is nothing to work loose.

Our Booklet C. 2 will prove interesting reading and will give you a full description of the Hall Cutter-head suited to your needs.

**The Pamphlet is free—just ask.**

**Write us for prices on other machinery**

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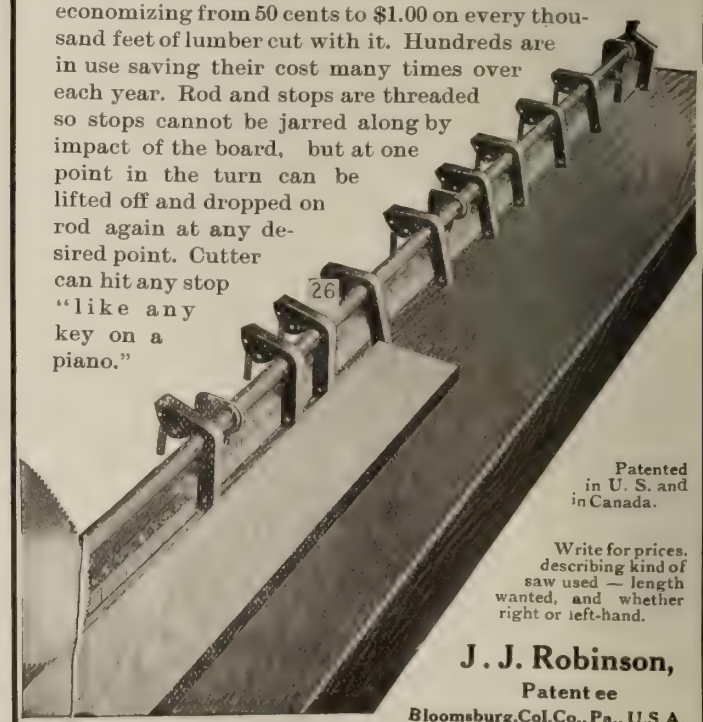
LIVE AGENT WANTED

## Robinson Improved Saw Gage

**Made in Canada**—Saving Duty and U. S. Freights for Canadian Purchasers. Sent on 30 days Free Trial. If not entirely satisfactory, send it back at our expense. This Gage will save Time, Material and Mistakes, thus economizing from 50 cents to $1.00 on every thousand feet of lumber cut with it. Hundreds are in use saving their cost many times over each year. Rod and stops are threaded so stops cannot be jarred along by impact of the board, but at one point in the turn can be lifted off and dropped on rod again at any desired point. Cutter can hit any stop "like any key on a piano."




Patented in U. S. and in Canada.

Write for prices, describing kind of saw used — length wanted, and whether right or left-hand.

**J. J. Robinson,**

**Patentee**

Bloomsburg, Col. Co., Pa., U.S.A.

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## St. Catharines, Ontario

MANUFACTURERS OF THE CELEBRATED "GOLD COIN" SAWS

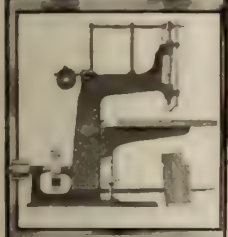
**We make Inserted Tooth Saws, Shingle Saws, Cross Cut Saws, Hand Saws, etc., etc.**

**We make every kind of Saw required in Saw Mills, Planing Mills, Furniture Factories, Piano Factories, Carriage Factories, etc., etc.**

We have been manufacturing for the Canadian trade since 1855, and have maintained the same high standard of excellence. Let us know your saw requirements.

# WOOD WORKING MACHINERY

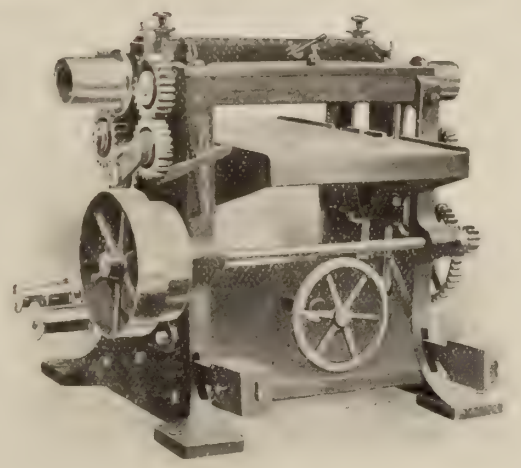
VALLEY CITY MACHINE WORKS GRAND RAPIDS MICH. U.S.A.


LINING MACHINE

VERTICAL BORER

DOWEL MACHINE

CARVER



Who looks over the field for new leads, new suggestions, judges values, and seizes the big facts?

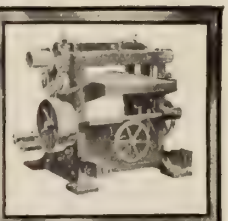
*The Man that Wins*

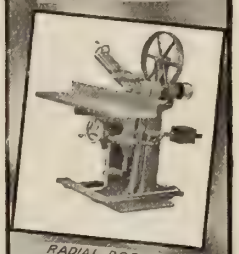
We style our 24 in. Double Belted Single Surface Planer "Reliable," and it is all the name implies.

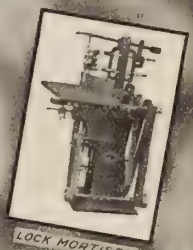
Table will drop to take stock 8" thick. Machine has four geared power driven feed rolls, removable chip breaker, easy adjustable pressure bar. All gearing is covered, bevel gears being protected from shavings by the frame. Cylinder is double-belted, made of forged steel, carries two knives, has extra long bearings running in babbit lined self-lubricating boxes, and travels 4,500 revolutions per minute, without vibration. Dresses your lumber as you want it dressed—to a finish.

## Valley City Machine Works

**No. 18 Campau St. - Grand Rapids, Mich., U. S. A.**


SINGLE SURFACER


RADIAL BORER


LOCK MORTISER

WOOD LATHE

# New Simonds Steel Mill

**A Complete New Steel Mill for Simonds Saws has been built and is now in operation at Lockport, N.Y.**

**Simonds Saw orders for the spring of 1911 will not be delayed in the least because of any lack of steel. The new mill settles that question.**

**Simonds Saws made from Simonds Steel are now up to the highest known standard of material in the steel from which they are constructed. The Lockport mill is to make this special grade of saw steel almost exclusively, and it is only for use in the manufacture of Simonds Saws.**

"Go find a suitable location and build an entirely new Simonds Steel plant," was the startling suggestion offered by a director of the Simonds Manufacturing Company when the subject of "service" was being discussed in a meeting, one day last spring.

Simonds Saws were selling faster than they could be made and delivered satisfactorily. The trouble was with the amount of steel being made by the original mill. The three factories, Fitchburg, Mass., Chicago, Ill., and Montreal, Que., could make the goods all right, but they couldn't get enough of our own high grade crucible steel, which is the only kind that will be put in Simonds Saws.

The problem had to be met. The suggestion of the director proved the best solution. Plans were at once made for a new mill. Lockport, N.Y., was selected as the location. Work of construction began early in the summer. The first steel was rolled Monday, January 2nd, 1911.

Briefly, that is the story of one of the biggest tasks ever accomplished by a Saw manufacturer. A more detailed account would tell of the months of strenuous work, getting men and materials on the grounds at Lockport; inspecting and passing the materials purchased for construction; and the constant pushing of construction work. Today the buildings are up as planned, the machinery is installed, and everything is being rounded out in the most convenient shape.

The accompanying illustration gives a view of the outside of the Simonds Steel Mill. Fourteen acres of land are covered by the buildings and immediate yards; and in all there are eighty acres of land here belonging to the Simonds Company.

The special saw steel properties which Simonds Steel possesses is primarily the result of using, in the first place, the right mixture for Steel making. Our principal reason for embarking in the steel business eleven years ago was on account of our not being able to buy from existing mills a uniform steel with a guaranteed mixture made to our specifications. Simonds steel is made according to a secret formula that is not elsewhere duplicated. Nothing that bears the name of "Simonds" has ever been made from anything but the very best of materials and in a crucible furnace.

Uniformity — uniformly good—is our constant watchword. Careful chemical analysis is made on every heat turned out of the mill. The physical properties of the steel are also tested out. We know of no other steel mill in the United States that is so thorough as the Simonds Lockport mill in the testing of steel.

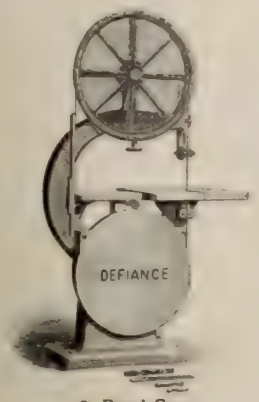
The machinery of the Lockport mill is thoroughly modern. All that is latest and most up-to-date in scientific crucible steel making is made use of here. New machinery and new methods enable us at once to double our former steel production. The mill is entirely electrically equipped. Electric current is brought on high voltage wires direct from generators at Niagara Falls.

When the difficulties of making Saw Steel are fully realized it will at once be seen why we do not go into the open market and buy any old steel for the making of Simonds Saws. Our satisfaction never stops short of a Saw that will satisfy the most exacting mill man. So, making our own Simonds Steel is a necessity to maintain the quality which has put and will keep Simonds Band, Circular, Cross-Cut and Hand Saws in the leading position which they now occupy.

The increase of our steel-making ability which the new Lockport mill brings to us is an excellent investment, the benefits of which will be enjoyed wherever Carpenters use Hand Saws or Mill and Lumber men use Mill Saws.

## SIMONDS CANADA SAW CO., LIMITED

**Montreal, Que.** **St. John, N.B.** **Vancouver, B.C.**



28 Band Saw

"Improvement is the order of the age." Is your plant fully equipped with a good line of up-to-date machines? If not get in line with other modern manufacturers by using

## "Defiance" Wood-Working Machines

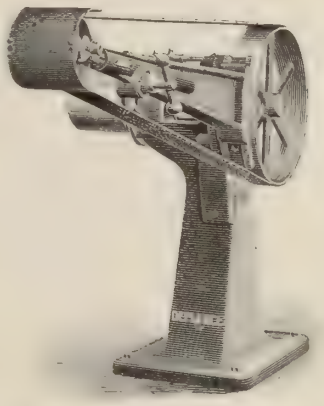
They are built for your every requirements for the producing of hubs, rims, spokes, wheels of every kind, wagon, carriage and automobile woodwork, shafts, poles, neckyokes and singletrees, handles of every description, spools and bobins, chair and table legs, hoops, golf sticks, insulator pins, oval wood dishes and a general line of wood working.

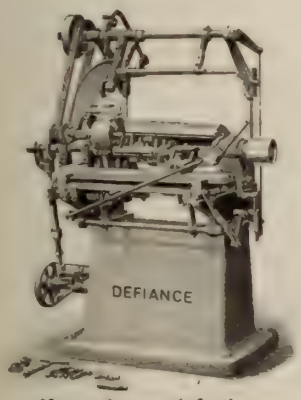
*Invented, built and guaranteed by*

## The Defiance Machine Works,

DEFIANCE, OHIO.

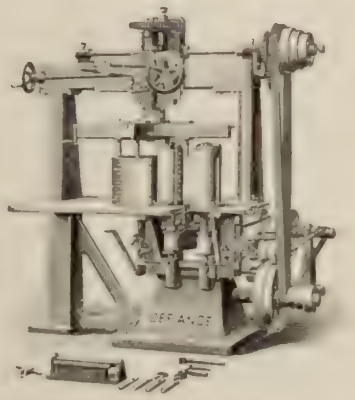
European Office, 71 Queen St., E.C., LONDON, ENGLAND.


No. 1 Adjustable Arm Polisher



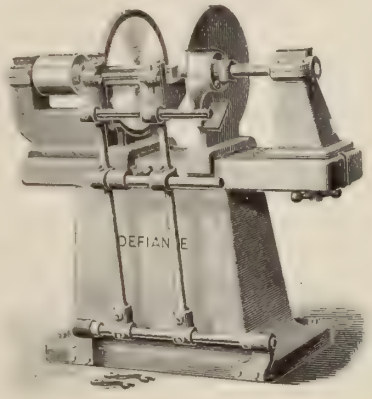
No. 444 Automatic Lathe

Ask for our 535-Page Catalogue

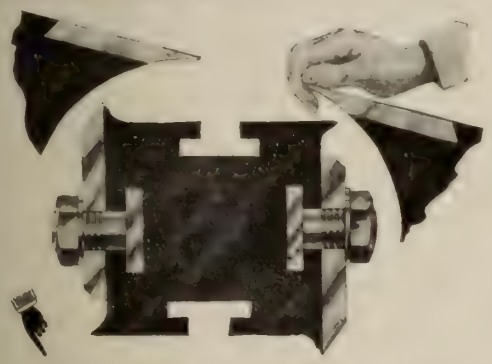


Auto Truck Rim Planer

Write for Detailed Quoations



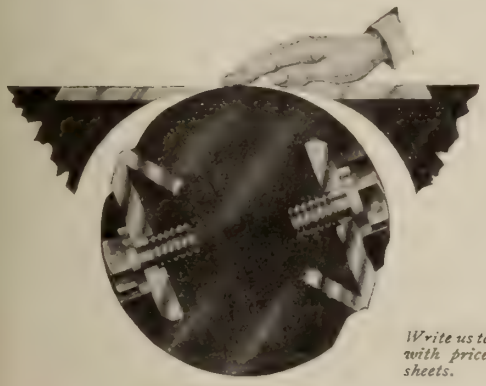
No. 6 Double Equalizer



## The Old Way

of cutting off fingers on the hand Joiters.

**You ought to equip your Jointers with "The Porter" Patented Safety Cylinders**



## The New Way

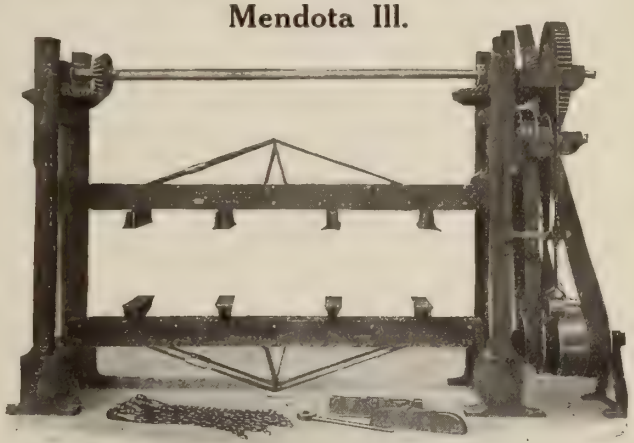
prevents those terrible accidents

*Write us to-day for our catalog with prices and specification sheets.*

## C. O. Porter Machine Co. Grand Rapids Mich.

## Black Bros. Machinery Co.

Mendota Ill.



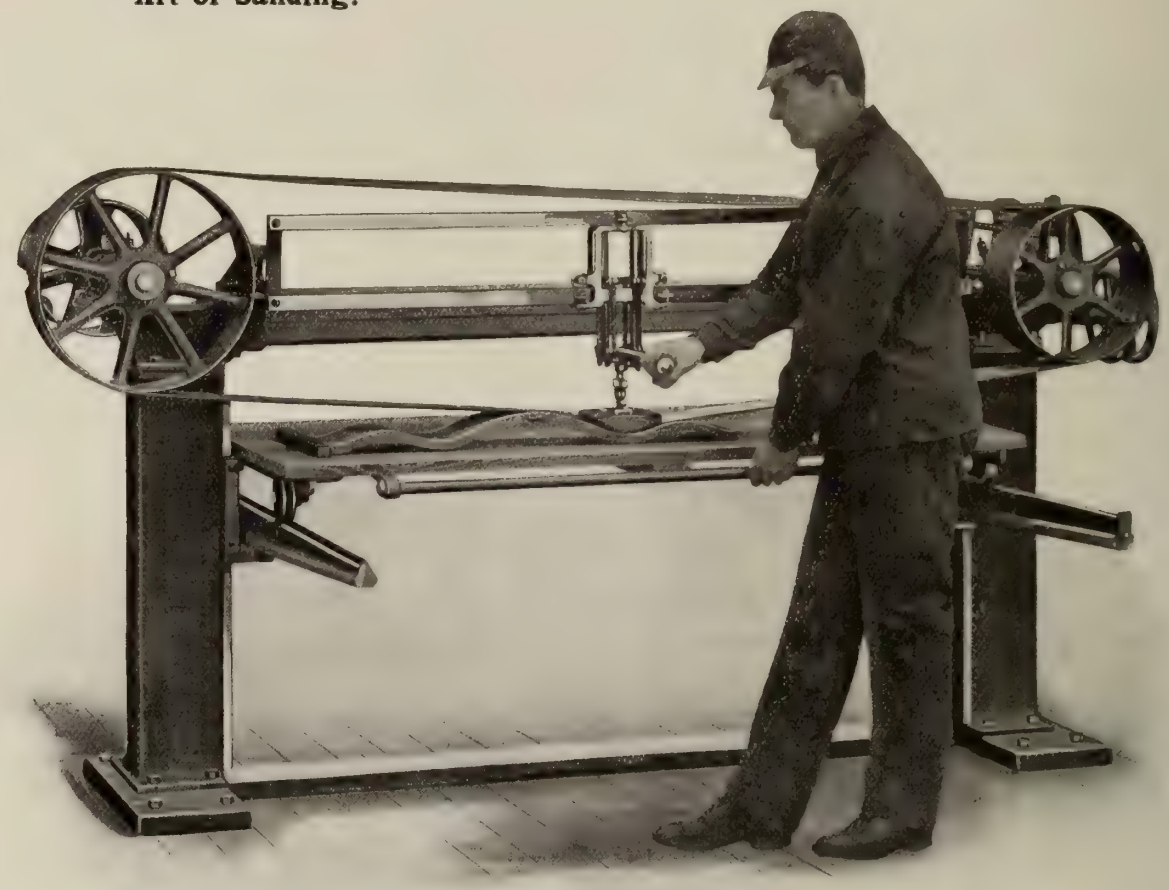
## A Veneer Press with a Reputation

We would like to give you particulars of this machine, because we can show you increased production and a better finished job. :: :: :: :: ::

**Better let us send you a folder about our Veneer Presses**

# Belt Sanders

Play an important part in Modern shop practice. The public demands **"smooth finish"** even in the cheaper lines of goods. What they demand they will get, if not from you then from your Competitor. You want the business and you can get it if you will only discard your old methods of "curry combing" your product and install our **Lucas Belt Sander.** This machine has revolutionized, simplified and perfected the **Art of Sanding.**



Canada's Best

## LUCAS-BELT SANDER

Patented

In Wood Tools

Stands for 100% Efficiency

By "Efficiency" we refer not only the quality of the work done but also to the quantity. What we claim is that the Lucas Belt Sander on **flat surfaces** or **irregular shaped forms** is capable of turning out more strictly high-class work than any other belt sander you can buy. **Let us prove it to you.**

WRITE FOR CATALOGUE AND PRICES

## Canada Machinery Corporation Limited

GALT, ONT.

# Canadian Woodworker

**Canada's Only Woodworking Paper**

Published in the interests of Planing Mills, Saw Mills, Furniture and Piano Factories, Implement and Carriage Works, Boxmakers and Coopers.

The Circulation extends from the Atlantic to the Pacific and covers thoroughly all classes of Woodworkers in this immense territory.

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SUBSCRIPTION RATE.

Canada, United States, $1.00; Great Britain, Australia and other countries 4s 6d., per year; other countries, $1.50. Advertising rates on request.

**Vol. 9** **February, 1911** **No. 2**


SAYS THE FRA.

Verily, the most necessary thing in a shop, store, bank, railroad office or factory, is to keep the peace.

He who scrappeth not with his neighbor, and shutteth up and closeth his gob, is getting a cinch on the foremanship.

And the foreman who smothereth a feud, and turneth the hose on the clique, is already engaged to the proprietor's daughter, and the painter is busy getting ready to put his name on the sign.

Beware of him who dealeth in fairy tales about his fellow workers, and for them maketh life difficult, for he is already putting salt on the tail of a blue envelope. —Elbert Hubbard.

---

No, Jimmy, the average shaper man could never make either a stenographer or a musician—he hasn't enough fingers left.

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## Great Britain's Lumber Imports

Great Britain is still the centre of the world's export lumber business. Its immense manufacturing interests, call for supplies for packing, building, shipping, etc., on the largest scale, and will continue to do so for a long time to come. A glance at the following table will show how the country draws upon the world's supplies, and from whence it derives the $131,000,000 worth of material it uses each year:

| | 1909 | |
|---|---|---|
| Sawn and Planed— | Loads. | |
| Russia | 2,798,922 | £ 7,347,760 |
| Sweden | 1,217,339 | 3,234,663 |
| Norway | 329,498 | 1,103,179 |
| United States | 412,814 | 1,627,438 |
| Canada | 1,105,545 | 3,237,588 |
| Other countries | 129,511 | 458,561 |
| | 5,993,629 | £17,009,189 |
| Hewn— | | |
| Russia | 379,605 | 781,863 |
| Sweden | 16,793 | 36,084 |
| Norway | 30,131 | 63,463 |
| Germany | 132,533 | 392,562 |
| United States | 164,709 | 907,160 |
| British East Indies | 36,484 | 619,374 |
| Canada | 33,147 | 259,094 |
| Other Countries | 32,957 | 432,069 |
| Pitprops | 2,820,576 | 3,136,828 |
| | 3,646,934 | £ 6,628,497 |
| Staves of all dimensions | 167,208 | £ 694,032 |
| Mahogany (tons) | 95,776 | 785,992 |
| Other furniture woods, etc. (tons) | 174,541 | 1,081,144 |
| | 437,525 | £ 2,561,168 |
| Grand total | 10,078,088 | £26,198,854 |

CHANGE IN CANADIAN POSITION.

In view of the recent talk about forest preservation, it might be well to note how the sources of supply have changed of late years, and how Canada has ceased to occupy the leading position she used to hold in this market. We will quote from 1903 for purposes of comparison:

| | 1910 | 1909 | 1907 | 1905 | 1903 |
|---|---|---|---|---|---|
| | p.c. | p.c. | p.c. | p.c. | p.c. |
| Russian goods | 47 | 46 | 37 | 35 | 29 |
| Scandinavian goods | 26 | 25 | 32 | 34 | 33 |
| Canada and United States | 25 | 27 | 28 | 28 | 33 |

No doubt it is owing to the growing scarcity of lumber throughout the world, as well as because of the enhanced expense of cutting and transporting it that prices have increased regularly and seriously during the years just gone by.

Taking an average of all kinds of woods, these have been as follows:

| | | | | | | |
|---|---|---|---|---|---|---|
| 1910 | £9 | 9 | 3 | 1906 | £9 | 11 | 0 |
| 1909 | 9 | 0 | 3 | 1905 | 8 | 10 | 0 |
| 1908 | 8 | 16 | 6 | 1904 | 8 | 10 | 3 |
| 1907 | 9 | 11 | 0 | 1903 | 9 | 0 | 0 |
| | | | | 1902 | £8 | 11 | 6 |

For the future there is to be an increase upon these rates, since the cost of production is not going to run down and there is a certainty of an increased consumption. For the present year, supplies on hand in Great Britain are not particularly large, as the following statement shows:

On hand—

| | 1910 | 1909 |
|---|---|---|
| Deals (fir), pieces | 1,303,544 | 1,739,897 |
| Battens (fir), pieces | 2,851,150 | 2,547,314 |
| Pine, pieces | 614,709 | 595,517 |
| Spruce, pieces | 704,852 | 554,196 |
| Pitch pine deals, pieces | 31,315 | 32,264 |

| | | |
|---|---|---|
| Deals and Battens in aggregate, pieces ..... | 5,505,570 | 5,469,188 |
| Rough Boards, pieces ..... | 6,185,184 | 5,222,562 |
| Planed boards, pieces ..... | 5,782,064 | 5,861,138 |
| Floated timber, loads ..... | 13,431 | 21,910 |

SUBSTITUTES FOR PINE.

Canada pine has become dear enough to be something of a luxury, and we are assured by a great London importing house that in consequence successful experiments have been made with substitutes. Canadian stocks carried over are smaller than usual, and if there is no more broken weather to interfere with operations now being carried on in the woods, there should be fairly heavy shipments at good prices next summer. The supply of first quality white or yellow pine is becoming scarce in the Dominion, and all we can ship will be taken care of.

SHORTAGE IN SPRUCE.

With regard to spruce this firm says: "The unsatisfactory character of the logging operations in Lower Canada during the winter, indicating a possible shortage in production, and the improving prospects for the lumber trade of Canada owing to the lowering of the United States tariffs, induced the exporters to pay an increase in prices which it proved exceedingly difficult to recover from the markets on this side. Some relief, however, from the burden of the growing proportion of batten sizes in all productions was obtained from the increased demand for box-making purposes consequent upon the boom in the export trade of the country. Sales become more frequent about midsummer, when it was evident that prices for all classes of cheap whitewood were likely to strengthen. In August the fact that freights were beginning to move upwards gave a further impetus to buying, and about this period the balances remaining for sale were practically cleared, without any change in prices. The effect of the rise in freights was to check further selling for the remainder of the season (except what was possible by means of the liners) and helped, of course, to keep consignments off the market. The trade has been practically uneventful throughout the season."

## New Companies Entering The Field

The Eureka Lumber Co., Ltd., Bathurst, N.B., are applying for a charter.

The Louisa Lumber Co., Lachute, Que., composed of Arch, McFaul, W. McFaul, J. McFaul, H. Morrison and W. Bery, have registered.

L. Villeneuve & Cie., Ltd., lumber merchants, Montreal, have registered. L. Villeneuve is president.

Blackadar & Blackadar, manufacturers of lumber, Millville, N.S., have formed a partnership.

The Quebec Pulp & Paper Company, Limited, Montreal, Que., has been incorporated with a capital of $15,000,000. The incorporators are C. G. Greenshields and E. R. Parkins, advocates, both of Montreal.

## New Wood Shaper Guard

It is well known that a wood shaper is considered one of the most dangerous woodworking machines to operate, and proof of this lies in the innumerable accidents to fingers and hands—accidents which necessitate amputation of injured members and make cripples.

The "Racine Shaper Guard" is said to be the only guard ever offered that allows the operator to see his work without the least obstruction, and absolutely protects him from accidental injury. With its use there is no chance of injury to the fingers or hands of the operator unless he deliberately touches the knives and consequently he can put out more work because of the protection it affords, and because he will not have to watch the knives so closely, and still have absolutely assurance of safety.

In past years shapers have been barred from many shops because of the extreme danger attending their use, but they are now being installed on the strength of safety appliances, which devices render them perfectly safe and harmless.

The foot or stand of this guard is fastened onto the table with either cap screws or bolts, and is provided with a slotted hole that allows easy adjustment for different size knives. The vertical adjustment, which provides for the work of various heights, is perfect. Tht guide consists of a piece of square steel, allowing the guard to be moved up and down. A split clamp in the guard with hand wheel for quick adjustment, firmly clamps over the guide.

A cut of this guard is shown in the advertisement of the Fair Manufacturing Company on the outside front cover.

## A Furniture Reviver Wanted

A subscriber writes as follows: "Thanking you for the information you gave me in a former letter, I would now like to have a formula for a wood polish, for reviving surface of furniture that has some bruises and looks dim, so that I shall not have to rub with pumicestone nor apply a coat of varnish."

The simplest formula and a very good one consists of two parts of sweet oil to one part of strong vinegar, well shaken before using. Rub well with a woolen rag.

A still better one is as follows: 16 ounces raw linseed oil, 6 ounces strong grain alcohol; 4 ounces acetic acid or strong vinegar, 4 ounces turpentine spirits, and 1 ounce butter of antimony. Mix ingredients well together, shake before using, and rub well with woolen cloth.

I favor crude petroleum for a furniture polish or reviver, as it cleanses well, gives life to the finish, is ready for use, and costs little; but it should be well rubbed off when done.—A. Ashmun Kelly.

## Hand Caught In Saw

Galt, Ont.—While operating a saw at Gardiner's mill yesterday afternoon, John McGee had the misfortune to have three of the fingers of his left hand taken off. He was working at the machine when he slipped and his hand came in contact with the fast moving saw. He was taken to the surgery of Dr. Charlton, where his injury was attended to. The three fingers were completely severed but the doctor expects that the unfortunate man will retain some use of his hand after the wound has healed.

# From Coast to Coast

### TWO NEW EASTERN INCORPORATIONS.

The Louise Lumber Company, Megantic, Ont., has been incorporated, with a capital of $20,000. The incorporators are T. M. Craig, lumber dealer, Sherbrooke, Que.; L. Bolduc, lumber merchant, and E. Huard, Megantic, Ont.

The Maritime Lumber Company, with an authorized capital of half a million dollars, and St. John, N.B., as the chief place of business, has been granted a Dominion charter. Among the incorporators are T. A. Linton and W. C. Jordan.

### NEW PLANT HERE.

Sarnia, Ont.—Work will be commenced on a new manufacturing plant to manufacture doors, boxes, egg crates and other classes of woodwork, by H. Diver. The plant will be erected on Nelson street in the north ward, on land acquired from the Cleveland-Sarnia saw Mills Company. The main building will be two storeys in height and will be 80 by 200 feet, of reinforced concrete. There will be a storage building of 20 by 200 feet; dry kilns of 60 by 60 feet, and a building for the steam power plant of 40 by 80 feet. It is expected that the new plant will be in operation in the early spring.

### HELD MEETING.

Owen Sound, Ont.—The organization meeting of the Great Lakes Lumber Company, Limited, was held recently at the head office of the company here. The following officials and directors were appointed: President and general manager, W. A. Rowland, formerly of McDonald-Rowland Lumber Company; vice-president, H. E. Rowland, president and general manager of Owen Sound Lumber Company, Limited; secretary-treasurer, Ed. J. Dedrich; directors, Hon. A. G. MacKay, K.C., M.P.P.; William Taylor, president and general manager Taylor & Pringle Company, Limited; W. H. Merritt, managing director National Table Company, Limited.

### B. C. INCORPORATIONS.

Victoria, B.C.—The British Columbia Gazette gives notice of the incorporation of the following companies: The Realty Fruit and Lumber Company, Limited, capital, $500,000; Island Lumber Company, Limited, capital, $100,000; The Wolverine Lumber Company, Limited, capital, $75,000; The Granite Creek Lumbermen, Limited, capital, $65,000; The Cranbrook Sawmill Company, Limited, capital, $50,000; Iowa Lumber & Timber Company, Limited, capital, $250,000; The Interior Lumber Company, Limited, capital, $20,000, to carry on business as timber merchants, sawmill and shingle mill proprietors; Oliver Scrim Lumber Company, Limited, capital, $100,000.

### NEW SASH AND DOOR PLANT.

Hamilton, Ont.—M. Brennen & Sons, Manufacturing Company, Limited, are contemplating the erection of a large addition to their sash and door plant during 1911.

### NEW MONTREAL FIRM.

Montreal.—The British Canadian Lumber Corporation, Limited, has been incorporated, with a capital of $20,000, the incorporators are R. H. Chrysler and C. J. R. Bethune, solicitors, of Ottawa.

### TIMBER COMPANY FORMED.

Toronto.—The Erie Timber & Land Company, Limited, has been incorporated, with a capital of $100,000, the incorporators are A. H. Royce and F. B. Henderson, barristers, both of Toronto.

### CUT HIS FOOT BADLY.

Fredericton, N.B.—Mr. Edward King, who has been working in the woods for the McNair Lumber Company, has returned home from Victoria County, having cut his foot badly, almost severing three toes.

### NEW INCORPORATION.

Nipissing, Ont.—The Twin Lake Lumber Company, Limited, Nipissing, Ont., has been incorporated, with a capital of $40,000. The incorporators are H. E. Hurlburt and E. F. Armstrong, lumbermen, both of Nipissing, Ont.

### THE LAD FROM GLENGARRY.

Owen Sound, Ont.—Mr. J. D. McDonald, formerly a partner in the McDonald-Rowland Lumber Company, has registered and commenced a lumber business under the name of "The Lad from Glengarry Lumber Company," of Owen Sound.

### COMMENCED TO ERECT.

St Francis, Ont.—Since the passing of a by-law granting special privileges to the Shevlin-Clark Company, work has been commenced upon the erection of the company's mill. The capacity of the mill will be over 60,000,000 feet per annum. A planing mill will also be erected, and the company will employ 400 men.

### TO HANDLE BASKETS AND VENEERS.

Ridgetown, Ont.—The mills of the Howard Cooperage & Lumber Company will soon be running again after being closed down for the past two years. Thomas Johnston has taken over the enterprise and has associated with him the Leitch brothers, who started the mills about fifteen years ago. They will handle lumber, baskets, veneer and fish boxes extensively.

KILLED BY LOG.

Fort William, Ont.—Chas. L. Kenny, sawmill owner, of Hymers, Ont., was struck by a large log and killed.

SASKATCHEWAN HAS TWO NEW ONES.

Regina, Sask.—The Magnet Lumber Company, Limited, capital $15,000, and the McGregor, Williamson & Reilly Lumber Company, Limited, capital $30,000, have been incorporated.

ACQUIRE INTEREST IN LOCAL COMPANY.

Grand Forks, B.C.—The Crown Lumber Company, with head office in Calgary, Alta., and retail lumber yards at 52 points throughout Alberta, have secured an interest in the Robinson-Lequime Lumber Company of this city. I. C. Schermerhorn, for a number of years purchasing agent for the Crown Company in British Columbia, has been appointed local manager, with F. E. Lehr, also an old employee of the company, as local accountant.

TIMBER LICENCES BRING LARGE FEES.

Victoria, B.C.—Statistics of the timber and coal lands administration branch of the Lands Department for the just past year, have just been completed, and show the total number of timber licenses issued during the twelvemonth to have been 12,195, the total amount realized in fees from such timber licenses being $1,598,-912.96. Timber license transfer fees aggregated $9,-147; timber license penalties, $15,800.

The total revenue derived from transactions in timber licenses alone is thus $1,623,859.96.

TRADE IN PULPWOOD.

Ottawa.—According to the statistics collected by the forestry branch of the Department of the Interior, there were 22,129 cords of pulpwood used in Canada during the year 1909. Of this the total value at the mills was $3,404,808. In spite of a decline in pulpwood, values increased more than $550,000 over that used in 1908, the quantity used being more than 30 per cent. in advance of that used in previous years. Three-fifths of the pulpwood cut in Canada during 1909 was exported to the United States for manufacture.

Nearly all this wood went from Quebec, and the average price received for it was only 45 cents more than was paid at the Quebec mills.

PULP LIMITS ON MARKET.

Toronto.—Pulp limits in Lake Abitibi and Fort Francis districts have been thrown open by the Ontario Government for sale by public tender. The Abitibi concession has an area of 1,566 square miles and the purchasers must erect at Iroquois Falls a half million dollar pulp and paper mill with an average output of 100 tons of paper per day. The Fort Francis concession contains 800 square miles and the successful tenderer must establish a $350,000 mill capable of turning out 50 tons of paper per day at Fort Francis. Thus all pulp wood and pulp from the limits will be made into paper in Ontario. Precautions will be taken against the pollution of the streams and lakes on the concession.

WANT AID FROM CITY.

Fredericton, N.B.—The Chestnut Canoe Company want to build another brick factory and will increase output of canoes and also manufacture snowshoes extensively. They want city to guarantee interest on $10,000 loan and give other concessions.

LADNER MILL GUTTED.

New Westminster, B.C.—The plant of the Jervis Inlet Lumber Company at Ladner, near the mouth of the Fraser river, has been totally destroyed by fire. The cause of the fire is unknown, but when the blaze was discovered so much headway had been made that there was no chance of saving the building. The fire-fighting apparatus was nil, but a bucket brigade was formed and the offices were saved.

The loss will be in the neighborhood of $20,000, almost wholly covered by insurance.

NEW WOODWORKING CONCERN.

Mr. John Crawshaw, of Amherst, N.S., has incorporated a new concern to be known as the Crawshaw Mfg. Company, Limited. The new firm will go in for making packing cases, about $20,000 of which are used in Amherst each year, and other articles of similar nature.

Store fittings and cabinet making will also be another line of the company.

The directors of the firm should count themselves lucky in securing Mr. John Crawshaw as general manager, as his friends in the trade are no doubt aware of his capability as an executive.

ADAMS-BURNS CO. TO CONTROL MILL.

Newcastle, N.B.—From authoritative quarters on the North Shore it is learned that the Adams-Burns Company will again assume control of their large lumber business at Bathurst. The Nepisquit Lumber Company had been operating the business, but the latter did not meet with the anticipated success and the concern will again be transferred to the previous owners. The reentrance of the Adams-Burns Co. will be welcomed in lumber circles. It is supposed that the Nepisiquit Lumber Company, not meeting with the success they had hoped for, is compelled to take the inevitable course. The Adams-Burns Company had retained possession of their various lands, so the operation will not suffer.

In October, 1909, the Nepisiquit Lumber Company started the erection of a new mill on the former site. At the time, some thought that the mill would be too large, and that the old mill would have met the demands. The new structure and machinery cost from $125,000 to $175,000, and it was the intention to cut sixteen millions. At all events the operation did not prove successful and subsequent developments necessitated the retirement of the Nepisiquit Lumber Company. Mr. W. G. White was the local manager of the concern, and Mr. Fred S. Morris was the general manager. The Adams-Burns Company is composed of Mr. T. D. Adams, M.P., J. Burns, and Mr. T. M. Burns.

CHANGED HANDS.

Corbin, B.C.—Finch & Jones, lumber merchants, are stated to have been succeeded by the Riverside Lumber Company, Limited.

INCREASING CAPITAL.

The Private Bills Committee of the House of Commons has passed a bill authorizing the E. B. Eddy Company to increase its capital to $5,000,000.

B. C. INCORPORATION.

Victoria, B.C.—The B. C. Gazette gives notice of the incorporation of the following companies: The Interior Lumber Company, Limited, capital $20,000; Iowa Lumber & Timber Company, Limited, capital $250,000; Oliver Scrim Lumber Company, Limited, capital $100,000.

WILL BUILD SOON.

St. John, N.B.—Joseph R. Clarkson, manager of the Edward Partington Pulp & Paper Company, Limited, reports that the company's paper mill will be erected in the near future. Mr. Clarkson has recently returned from England, where he went to discuss the matter with Mr. Partington. The plans for the mill are at present being prepared in the old country.

BIG SALE OF LAND.

St. John, N.B.—Negotiations are reported to be progressing satisfactorily for the sale to New York capitalists of the Anglo-American Development Company's large timber land interests in Labrador. The property embraces 13,853 square miles, or 8,865,000 acres, about equal to the area of the State of Massachusetts, or to the entire area of the timber lands of Maine.

TO BE LIQUIDATED.

Montreal.—An order has been issued for the liquidation of the Guay Lumber Company, Limited, of Montreal, for the benefit of its creditors and shareholders. The application was not contested by the company, a minute being submitted to a meeting of the directors, where it had unanimously decided that it was in the interests of the shareholders and creditors of the company that its affairs should be wound up.

Weymouth Bridge, N.S.—The Campbell Lumber Company, of Weymouth Bridge, N.S., whose plant was destroyed by fire on January 23rd, will commence rebuilding as soon as they have completed the details of their plans, They are undecided at present whether to install a pulp mill or a power plant, but will probably decide in favor of the pulp mill. It is expected that the building will have concrete foundations, with steel superstructure and corrugated iron. If it is decided to put up a pulp mill, a modern plant will be installed with the latest improved wet machines, screens, etc. The company's dam, flumes, water wheels and grinders are still intact, not having been injured to any extent by the fire. They also intend to install an up-to-date sawmill in connection with the proposed pulp mill.

Fredericton, N.B.—Judge Barry has granted an order to allow the liquidators to grant an option on the property of the Miramichi Pulp & Paper Company for three months at $345,000. According to the terms of the option, $15,000 is to be deposited within thirty days, and if the option is not executed within three months this amount will be forfeited. An order was also passed authorizing the liquidators to reimburse Mr. George Keeyes, of the Nashua River Paper Company, to the amount of $8,100, which he is advancing to pay the overdue wages of the men of the Miramichi Pulp & Paper Company. Mr. W. B. Snowball, of Chatham, one of the liquidators, is leaving for England in a few days to interest English capitalists in the industry. It is understood that several Canadian and American capitalists are becoming interested, although the representatives of the company state that the time has not yet arrived to make the names public.

PUTTING ON ADDITIONS.

Galt, Ont.—P. W. Gardiner & Son have decided to erect two more additions to their plant this year, one immediately, to enlarge the glue room.

NEW COMPANY.

Toronto.—The Standard Chemical Iron & Lumber Company of Canada, Limited, has been incorporated, with capital of $6,000,000. The incorporators are J. Wood and T. W. Lawson, barristers, both of Toronto.

NEW LUMBER CONCERN.

London, Ont.—The George N. Kernohan Lumber Co., Limited, has been incorporated with a capital of $40,000. The incorporators are G. N. Kernohan, lumber merchant, and J. M. McEvoy, barrister, both of London.

REBUILD THIS MONTH.

Brigden, Ont.—The Dominion Cooperage Company, Limited, whose plant was recently destroyed by fire, have placed orders for their new machinery and expect to begin rebuilding this month in order to have the mill going in the spring. They will continue to make a full line of cooperage—staves, heading and hoops.

TO BE WOUND UP.

East Toronto.—An order winding up the Belding Lumber Company, of Gerrard street, has been granted by Mr. Justice Sutherland. G. T. Clarkson is named interim liquidator, and a reference is directed to the Master in Ordinary. The company's nominal stock is $40,000. The assets are placed at $18,000, and the liabilities at $20,000.

TIMBER AND POWER MILL GOING UP.

Dryden, Ont.—The Dryden Timber & Power Company have drawn up the plans for their new mill site. The plans provide for a new building 400 feet in length and varying in width to 250 feet, which is to include shipping rooms, screens and wet machines, digester and bluing tanks, acid and making rooms, wood and boiler rooms. A log conveyor will carry logs to an adjacent cutting up mill, 50x30. The architects are the Fibre Development Co., of Appleton, Wis.

# Planing and Moulding

## The Handling of a Hand Jointer

C. C. Bosworth.

It has been suggested to the writer that possibly among his varied experiences he might have noted something relative to jointers or other machinery which might be of interest to the fraternity of woodworkers I wish at this time to offer several suggestions which may be of use in the handling of a hand jointer.

### Mutilation.

Perhaps more accidents have occurred to operators of the jointer than on any other piece of woodworking machinery. The first person the writer ever saw mutilated was employing this useful piece of machinery for a purpose for which it was not intended. He was planing up short blocks that were not much longer than the gap, and the operator came away minus three fingers. I was just beginning my apprenticeship at the time and the vivid impression has never forsaken me. When working at the trade I never approach a jointer without using more precautions than when operating any other machine. One of the precautions is that I always want to be sure of my footing. Chips and blocks along the standing space are always objectionable, as is also a slippery, well-worn floor. I see in a previous issue that rubber mats are suggested and which I should think would be very desirable. The sure footing would add much to the self-confidence of the operator. It appeals to the writer at least, that being one of his weak points as already stated.

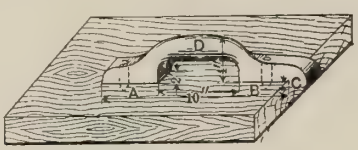



Fig. 1

### Dull Knives.

Another precaution is to avoid the use of dull knives. They pull too hard and are more apt to jerk the stock out of one's hand. The larger shops usually have one man whose duty it is to keep the machinery in proper condition, but how is it in the shops where a few men only are employed and one waits on the other to do this disagreeable job? The consequence there is that the dressing is deferred much longer than it should be. As a result there is inferior work. Occasionally someone gets nipped, and no one is to blame.

If there is only one man in the shop, he should be ashamed to use a tool in this condition. It shows poor economy of time to use a dull tool. If there are more than the one man, then a workman should be held responsible for keeping all or certain machines in good working condition. Then there is no taking of chances and waiting on the other fellow to take his turn. The job will be done better and the necessary accessories will be at hand when wanted the next time.

### Table Elevation.

A precaution, where quite a number use the same machine, is to note the relative location of the tables. The last person may have been taking quite a heavy cut or may have left the gap open wider than necessary, which if you are operating on a small piece may jerk your hand in or ruin the piece. Many good suggestions have been offered these columns relative to grinding, dressing and balancing of knives, also as to adjustment of the tables and care of the boxing. I do not feel that I can add anything of interest to what has already been published.

### Improving the Jointer.

Every once in a while we note some new build or design of jointer advertised, the improvement being a change in proportions or some alteration to adapt the machine to a particular branch of work. It seems to me that the most important change in jointer practice has been in the recent addition of devices to prevent accidents. I am not familiar with any of them, but the

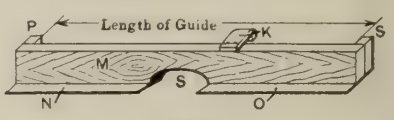



Fig. 2

principle seems to be all right. I dare say that they will eventually come into quite general use. Cautious manufacturers will equip their machines with them to prevent accident liability. Whether the operators will continue to use them after the novelty has worn off is another question. As is usually the case, some day the guard will be taken off and set on the floor for one purpose or another. The next fellow comes along in too much of a hurry to replace it and thus a protective device of inestimable value may gradually grow into disuse and become a nuisance. Then we may hear the remark, "Oh, yes, it's all right, but—," which brings us back to first principles and the proposition that most of these accidents are the direct result of carelessness or bad judgment in the use of the machine. Men often get in a hurry and do with a jointer what they should do with another machine or with a hand tool.

### Safety Devices.

I do not wish to be understood as discouraging the use of these safety devices. In fact, where they are supplied, the men should be compelled to use them. But it takes a long time to bring them into general use as many do not look with much favor upon any additional expense put into non-productive devices. To those of my fellow-craftsmen who may have a real desire to protect themselves, at the expense of a little

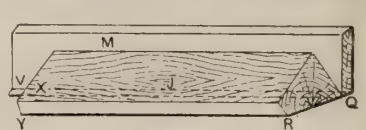



Fig. 3

trouble, when they are not protected by one of the devices I have mentioned, I here submit a description of a little scheme which I have found very useful in practice. It is simply a handle, shown at Fig. 1, and sawed out of a piece of about 2-inch stock, say 4 by 11 inches. At D it is rounded to such size as snugly fits the hand. There is a lug C about ¼-inch deep to make the end thrust secure, and at A and B brads are driven through the handle and filed flat and sharp so that the knife-

edge will enter the fibre of the work easily. These prongs are left about 3/16-inch long. A light tap of the hand or of a block or anything handy will drive them into the work and hold it firmly.

PRECAUTIONS AND PRACTICE.

In small work the prongs hold sufficiently tight to lift the work by them. But in its use never depend upon this alone and lift is directly over the knives. The work might drop off on the knives. I never knew this to happen, but right here is a precaution. It is surprising how much more steadily one can control the piece being operated upon when using this device. Of course, on certain cabinet work it would hardly be allowable, but on pattern and similar work the prong marks are no objection.

This handle, instead of being made of the shape shown in fig. 1, may be made as in fig. 4, and the lug C can be omitted. This will be found of advantage in surfacing segments after they are sawed out—which it may be advisable to do in some instances—or where many of some particular shape are to be surfaced. The lug C, fig. 1, may be made of a shape to fit the article to be surfaced and tacked to the handle so as to engage it. For small work the prongs will be found sufficient to hold it.

Fig. 4

In some work after truing up the stock, it often happens that there is quite a lot of beveling to do and this is often done by hand. In many instances it can better be done on the jointer, saving quite a lot of hard work and valuable time. Fig. 2 explains a device for accomplishing the object with little expense for rigging. M is a piece of wood a little longer than the guide and with strips P and S nailed on the ends. These hold it in place endwise on the guide and a flat piece of hoop iron K screwed on to the top with a hooked end to pass over the top edge of the guide is all that is needed to hold it secure to the guide and make it easily removed and replaced or it can be held by a small screw clamp if desired. At S the piece M is cut out to clear the knives. O and N are two pieces of thin sheet iron or tin tacked on to M. They project from the face M about 1¼ inch or less. This completes the device.

By passing the edge Q of the stock J over these guards O and N of course the edge Q V is not cut while the face R Q is cut away to the desired line R Y, giving the necessary bevel. These dimensions and details are only suggested. I think that the verdict of those who have tried either of these devices is that their use fully paid for the trouble.

I have known of jointer accidents from operating on defective machinery. This simply comes under the head of carelessness and indifference to danger and as we know from experience it is the unexpected which frequently occurs.

## Wages of Workmen in Building Trades

Some interesting statistics have just been compiled by E. M. Craig, secretary of the Chicago Building Contractors' Council, showing the rates of wages paid workmen in the various branches of the building trades in Chicago, as contrasted with those paid in the same lines in 1902. From the table here given, it will be seen that the painters received the highest advance and the bricklayers and stonemasons the lowest:

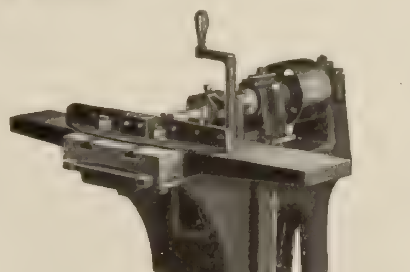
| | Per hour 1902 | Per hour 1910 | Per cent. Increase |
|---|---|---|---|
| Bricklayers and stonemasons | $0.60 | $0.67½ | 12.5 |
| Structural ironworkers | .50 | .65 | 30.0 |
| Ornamental ironworkers | .50 | .60 | 20.0 |
| Plasterers, tilesetters, steamfitters, plumbers | .56¼ | .68¾ | 22.2 |
| Gasfitters | .50 | .68¾ | 22.2 |
| Carpenters | .50 | .60 | 20.0 |
| Painters | .40 | .60 | 50.0 |
| Stonecutters | .45 | .62½ | 37.0 |
| Electricians, lathers | .50 | .68¾ | 37.5 |
| Sheet metal workers | .42½ | .60 | 41.2 |
| Marble setters | .50 | .62½ | 25.0 |
| Cement finishers | .40 | .57¼ | 37.5 |

According to the authority above quoted, bricklayers in Kansas City secured an increase of 37.1 per cent. since 1902, and in Providence, R.I., 35.4 per cent. Chicago led 24 other cities in the advance in wages for building workmen, the average for all trades being much higher than in any other city.

## A Handy Tool

Knowing our readers are always interested in machines that are distinctly new, we take pleasure in illustrating a brand new horizontal hollow chisel mortiser manufactured by the well-known firm, J. A. Fay & Egan Company, 153-173 West Front Street, Cincinnati.

This machine is described as being very handy and capable for the class of work intended. It will mortise to a depth of 3-inch or 6-inch by reversing the material. It accommodates chisels from one-fourth to three-fourths inch square.



No. 270 Horizontal Hollow Chisel Mortiser

This horizontal mortiser is very simple, strong and exceptionally well constructed, being easy to control in operation and taking the smallest possible floor space. The frame of the machine is a single piece casting with rigid floor support.

The table is 6-inch wide and 36-inch long.

The machine is so constructed that a slight pressure on the foot treadle gives great leverage and advances the table to chisel, mortising to a depth of 3-inch or 6-inch by reversing the material.

The chisel mandrel is made of the best grade of crucible steel, and runs in self oiling bearings.

This horizontal hollow chisel mortiser is only one of the many woodworking machines made by this company, and, like them, is an important factor in the woodworking industries.

You are invited by the manufacturers to write for large illustrated circular.

## What Was Noticed On A Trip

The writer happened into a small mill in a good live town where they were making a big batch of sash, and saw two men, each with a hand mortise chisel and a mallet, busy pounding out mortises while another man was cutting the tenons on a band saw. How is that for being up to date? And the rest of the shop was well equipped for general planing mill work.

The writer was especially interested in watching the men making the mortises as it was the first time in his planing mill life that he had seen it done by hand, although he had several times seen the old foot-power mortises at work. The men were quite quick and handy and the mortises were good, no doubt long practice had qualified them. The man at the band saw was doing good work too, even to cutting the cope on the tenons.

In the same mill they had just run a batch of resawed beaded ceiling on the sticker and the machine was still set up. The stickermamn had it rigged up to dress four sides match and resaw at the same time; the resaw was on the inside or groove head. He had taken an old square head and had it cut in two so that he slipped one piece on, then the saw and then the other piece on top of the saw, bringing the saw in the centre. He then put a knife on the bottom part to dress and make the groove of the bottom strip and another knife on the top part to dress the groove of the top part to dress the grooves of the top strip. After the strips left the saw they were divided by a thin strip of steel to keep the top strip from riding on the saw over the bottom head of the sticker; they were held down by the ordinary pressure bar. The strips were well run and neatly sawed.

The stickerman was a decent chap, so asked him how his machine worked. He said he would show me, so he ripped out a dozen or so strips and started up. The machine worked very well, but fed very slow; in fact, about 25 feet per minute as we found by timing it. He said the belt would not drive the saw, also that the saw would wobble or run up and down, making the cut very uneven, also the saw would heat if the feed was increased to the next feed, which was about 40 feet per minute. What was the matter that the saw did not run true at the faster speed?

The writer had the privilege of calling on several of the planing mills in Toronto. In one of these, where they get out mouldings to architects' details for the large building trade that has been going on there, with such a variety of different mouldings with probably only a few lengths of each, the stickerman is kept busy making knives and setting up for mouldings. For instance, in the factory mentioned a certain odd-shaped crown moulding was to be made, and the stickerman was given a drawing and ordered to go ahead. The bill called for 100 lineal feet. So, getting an old knife nearly the shape, he undertook to grind it to shape by the drawing. He took his knife and drawing to the emery wheel and I timed him by my watch. It took him nearly 50 minutes. After the first piece of moulding was run through he compared it with the drawing. It showed nearly 1-16th out in two places. He said it would have to go as he had spent time enough on it now. if he spent any more time on it there would not be any profit in the job. I suggested that the architect might not pass it. Can't help it, he said; it will have to take its chances. I do not know whether it went through or not, as I did not follow it any further. Still I do not blame the architects some times when they reject mouldings that are not true to details.

THE TRAMP.

## Piling Methods

I recently received a letter from a party in the East, stating that he had paid a filer two hundred dollars cash, and two years' work free to teach him (the writer of the letter) the filing trade. Then, having the money, as well as the time, the filer refused to teach him anything about the bench work, or even let him try to do any bench work; so that all he knows for him time and money is to swage and grind--or do just a helper's work. This sounds to me something like the man that stuttered. Seeing an advertisement claiming to cure any case of stuttering for five dollars, he sent the five dollars and received the following advice: "Keep your darned mouth shut." There are some persons in the filing business that do not give much better advice than this man received. Or perhaps this filed thought he was as generous as the down-east farmer who went to Boston, accompanied by his daughter, to sell butter and eggs. After selling all their stock, the farmer went to a dry goods store and told his daughter to pick out anything she liked. She was not long in picking out a fine roll of ribbon. The farmer asked the price, and was told it was very expensive—forty-five cents a yard. "Well," exclaimed the farmer, "we have done well selling to-day, and must spend a little money in town; give her five cents' worth."

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## Wood Displacing Wall Paper

An increased partiality is being evidenced for wood, instead of wall paper, in the decoration of sleeping-rooms. Sycamore, bird's-eye maple and birch, alternating with enameled woods, are the favorites. One sleeping-room so arranged is finished in bird's-eye maple, with a baseboard or wainscoting about 27 inches wide, with a baseboard or wainscoting about 27 inches wide, and a cornice and frieze 18 inches deep, composed of this wood. One of the new-style nurseries is wainscoted with sycamore of a yellowish tint, to a depth of three feet, the space between the wainscoting and ceiling being broken half-way with a wide moulding of wood.

In a dining-room decorated in the same fashion, the walls to the height of seven and a half feet are lined with oak of a dull gray, showing litle or no grain, and as smooth as wall paper. Across the bottom is a seven-inch baseboard, and a few inches from the top the surface is ornamented with medallions, a little more than three inches in diameter, placed about a foot apart. These are carved in the wood.

### COLOR DESIGNS IN WAINSCOT.

Another dining-room is wainscoted to within three feet of the ceiling with chestnut wood of a drab or putty color, the black-brown large grain of the wood showing up in a moire antique effect, describing an inverted V. This effect was produced by piecing the panels down the centre and cutting the wood on the bias, matching the grain as perfectly where the halves joined as a dressmaker would match the stripes in a silk gown. In this room the same effect is carried out in the heavy mantel, the door and the window panels.

A belief is becoming prevalent that wood is more hygienic than paper or other upholstering fabrics, and this may account, in part, for the increased demand for wood fittings. The main reason, however, is probably due to the love for change, so characteristic of the American people, or a liking for something new.

## Big Steel Mill Finished

ONE OF THE BIGGEST MOVES EVER MADE BY THE MANUFACTURERS OF SIMONDS SAWS.

A complete new steel mill for Simonds saws has been built and is now in operation at Lockport, N.Y. The steel making part of the Simonds Mfg. Company's Chicago factory was entirely too small to meet the constantly growing demands for Simonds saw steel.

The problem had to be met. It was a question of more steel; consequently plans were at once made for a new mill. Lockport, N.Y., was selected as the location. Work of construction began early last summer. The first steel was rolled Monday, January 2nd.

At Lockport there is a separate rolling mill for band saw plates, cross-cut saw plates and circular saw plates. Ample room is also provided for plates for Simonds hand saws and steel specialties.

One general building is located adjacent to the ends of the rolling mills for the making of steel ingots.

A considerable proportion of the iron used in the famous Dannemora iron imported direct from Sweden, on which there is a high duty. Nothing that bears the name of "Simonds" has ever been made from anything but the very best of materials and in a crucible furnace.

Uniformity—is Simonds constant watchword. To make sure of this desired uniformity, careful chemical analysis is made on every heat turned out of the mill. The physical properties of the steel are also tested out. We know of no other steel mill in the United States that is so thorough as the Simonds Lockport mill in the testing of steel.

A modern gas producing plant is in operation next to the crucible furnace building and there is produced the great amount of gas used in the furnaces.

The machinery of the Lockport mill is thoroughly modern. All that is latest and most up-to-date in scientific crucible steel making is made use of here. New machinery and new methods enable them at once to double their former steel production.

Direct from Niagara Falls to the Simonds Steel Mills, high voltage wires carry current sufficient for four thousand horse-power, and an electric plant of no mean size is required to house the transformers and necessary switchboards.

At the entrance to the grounds at Lockport, a substantial two-storey brick building has been built to accommodate the office force and the laboratory. The laboratory has always been one of the chief points of interest around Simonds Steel Mills, as experts make careful tests of every lot of steel produced for saws that bear the name Simonds.

For passenger traffic an electric line has half-hour fast service direct to Buffalo. All trains stop at the Simonds Station. The New York Central Railroad has freight connections with the Simonds private switch track, which has four spurs, running right into the buildings of the steel mill, so that raw material may be unloaded and finished plates shipped with the least possible delay.

# Talks On Drying

E. E. P.

While drying, to one who has acquired a knowledge of the law of physics, is no mystery, to the casual observer many things seem much of a mystery. The progress in drying has been very much hindered by manufacturers who do not understand the various combinations of vapor and of water with air and the conversion of water into vapor.

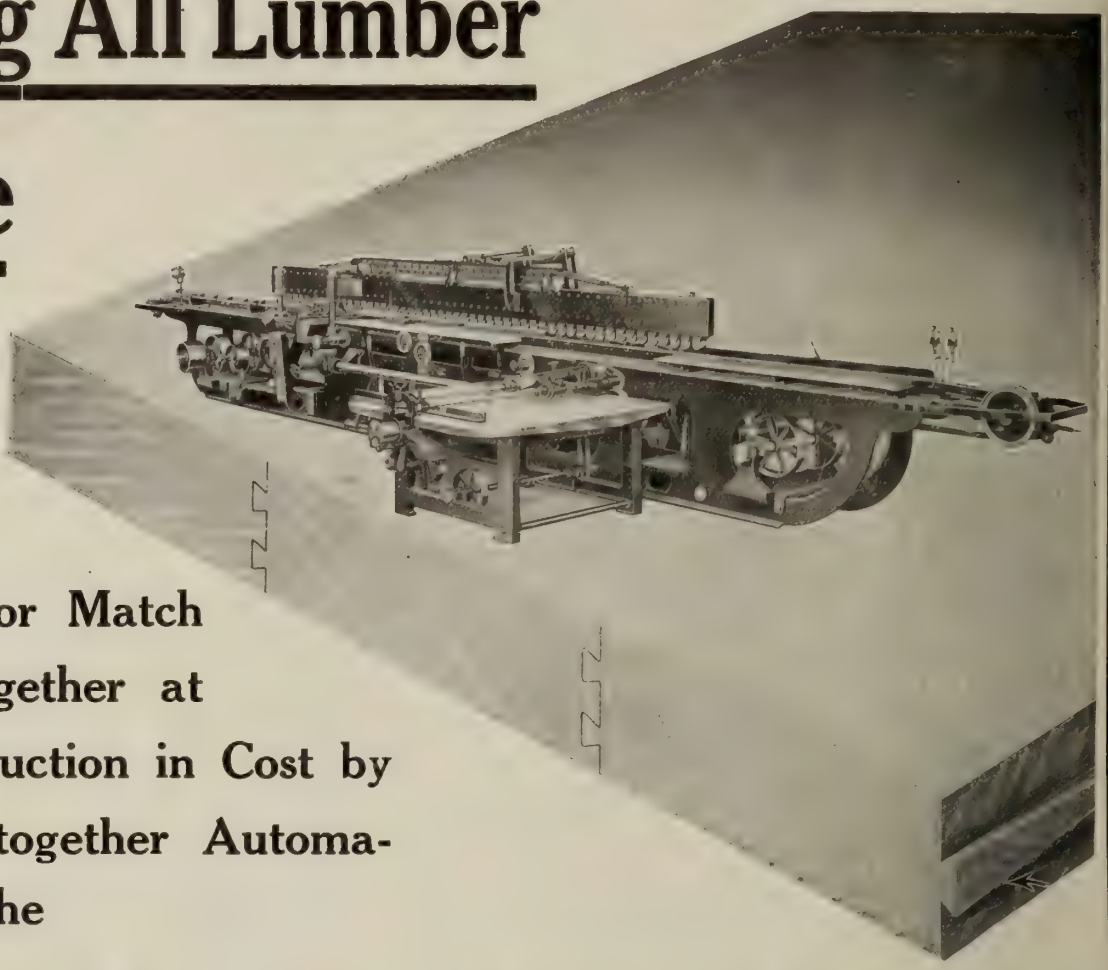
Water is only held in its liquid form by the pressure of the atmosphere. If this pressure were removed vaporization would immediately take place to the point where the heat absorbed in evaporation of the water from its liquid form into vapor, would change much of the water into ice. The process of drying by vacuum consists in removing the air, allowing the water to change into vapor. To contine the process of drying to the point of removing the water, it is necessary to supply heat. In vaporizing water with air this heat is largely supplied through the air itself, the amount of circulation within the room, returning this moist air to the pipes to be reheated. When this is accomplished, and the surplus moisture disposed of in amount as removed, all possible has been done in moist-air drying. Having in mind that for fast drying it is not the amount of moisture in the air that is to be considered, but the water vapor that air will hold per cubic foot depending on the temperature of the air. The capacity of air for moisture is approximately double each 25 degrees the air is advanced in temperature. As an example, air at 115 degrees will hold approximately 30 grains of vapor of water per cubic foot, air at 140 degrees holding approximately 60 grains. The theory is that the more heat given to air, the greater the expansion and the more motion is imparted to its particles, so that rapidity with which water may be vaporized depends on the temperature applied.

In drying wood, this vaporization is hindered by the wood fibre, which varies in density in different varieties and growths. We have, in this applied heat, another effect, which appears to be the energy or force of heat. As an example, this force seems to equalize the amount of moisture in everything within its radiation. Baldwin states this law as "Heat will expel moisture when the air will no longer sustain it," so we have, in the application of heated air, a capacity for moisture and a force to aid in expelling it from the cells of the wood.

To preserve the full tensile strength of wood, it is necessary that only such an amount of heat shall be applied as will expel this moisture without destroying the cellular structure of the wood, also that the air shall have only such capacity as will absorb the moisture as fast as it is drawn or expelled to the surface. By "drawn or expelled" is meant that we have the force of heat expelling the moisture, and also the capillary action carrying it to the surface. If the moisture is removed at the surface faster than supplied to the centre, we have the effect known as "casehardening." If too much force is supplied, bursting the cells, the shrinkage is much greater, and as the fibres solidify, it works harder for the machines, and, in fine work, splinters and increases the waste; also, this stock will split more easily under the nail.

The next method we have in vaporizing water is by the application of superheated steam. This is a very quick method of turning the sap into steam, but also a medium of great force and heat is applied. If the lumber is not removed when it lacks sufficient water or sap to supply the evaporation, to limit its own heat, it will char or burn as easily as under the application of dry, hot air. Where this method is employed, it is much less expensive to superheat with steam under pressure

# Saving All Lumber Waste



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within the room itself than with a separate superheater. This method may be employed in any kiln by the application of steam under pressure to allow evaporation above 212 degrees and limiting the exits in the kiln to retain the vapor of water to be reheated to a higher temperature than 212 degrees.

The other method used in expelling the water or sap from lumber is applying steam under pressure. This is the quickest known method of drying. Steam under 300 pounds pressure, having a temperature of above 400 degrees heat, with this applied pressure of 300 pounds per square inch, its effectiveness is easily seen. This method is used on oak ties where it is desired to crush the fibre, making it proof, so far as it may be, against the future absorption of water, with the application of a creosote compound forced into the wood as soon as the water is removed. The thing which it has seemed hard for the average manufacturer to understand in the past has been that the more moisture retained in the air without condensation in the dry-kiln, the faster and better the material may be dried. The reason for this is that moist air allows a higher temperature and prevents the direct radiation from striking the wood, the ray being imparted to the air instead, as when the cloud intercepts the ray of the sun; also that it holds more heat, exerting a greater force and supplying the heat needed in evaporation more readily. It will absorb heat from the steam pipes much faster, as is shown in the quicker condensation of steam when using moist air in the drying room. By taking into consideration the fact that moist air is lighter than dry air, illustrated by the clouds being above the earth's surface, the point of condensation will always be first on the ceiling. If this is borne in mind, the exit can be closed or enlarged accordingly. The point of value in a drykiln is to obtain a amount that the air will carry additional, the mystery disappears. Air at 175 degrees, half saturated, has as great a capacity for vapor of water as air at 150 degrees, absolutely dry, and holds more heat.

Moist-air drying seems the only practical method for drying hardwoods, and includes the use of direct steam at atmosphere. There is no practical difference in the amount of moisture contained in a cubic foot of steam at atmospheric pressure and that of air saturated at the same temperature, 212 degrees, and, under Dalton's law that one gas will take the place of the other as though the other were not there, loosely confined steam and air may occupy very nearly the same space, only, when this happens, we no longer call it steam, but it becomes a very visible moisture sustained in the air. If this steam is condensed or allowed to pass out of the kiln, it becomes a considerable exponent in drying. It is seen, therefore, that moist air has the same effect on lumber as steam; that is, when the lumber is cool it absorbs the heat, the moisture condensing on its surface. As the lumber becomes thoroughly heated, drying begins slowly if the steam is confined, but rapidly if condensed or allowed to escape. This explanation is given relative to the value of steaming lumber before drying, showing that moist air at 212 degrees, saturated, and steam at 212 degrees are, for all practical purposes in application to lumber, one and the same thing.

## New Up-to-date Plant

Regina, Sask.—The Western Mfg. Co., Regina, are stated to have purchased the plant of the Saskatchewan Sash & Door Company, Moose Jaw, Sask., which they will replace by a large up-to-date plant.

## Sawing Straight Strips

For sawing lumber into narrow straight strips for mouldings and similar work it is very important that the board be guided past the saw in such a way that it will follow a straight line. For this purpose the saw-table should be twice as long as the longest board to be worked up, and a guide should extend the entire length of the table. The board is then placed against the guide with the hollow side toward the latter, so that it is supported at its extreme ends or at least at points as far apart as possible.

In this way any irregularity in the edge of the lumber is corrected at the first cut. After having trued the edge in this way the stock may go onto an ordinary power feed rip-saw with a comparatively short guide. The short guide working against a true face will cut the successive strips of equal width, that is, parallel from end to end.

Some mills have used a carriage supported on rollers upon which the board was clamped while it was passed before the saw to joint the edge, but the objections to this method are, first, that it takes time to clamp the board, and second, the carriage must be returned to the feed end before another board can be started past the saw; while where the long stationary guide is used, one board can accurately follow another.

## Say Lumbermen Fear Reciprocity

Spokane.—"The proposed reciprocity agreement between the United States and Canada is a very big question. Even from our point of view is a national and not a local issue," said J. S. Deschamps, one of the leading lumbermen and largest timber owners of the Kootenay district of British Columbia, who is at the Hotel Spokane on his way home to Rossland from a trip to Vancouver and Victoria.

"The coast lumbermen, or at least the biggest men in that business on our side of the line, are strongly in favor of reciprocity, because it will give them a steadier market, as well as a larger one, than they have ever before enjoyed. So far as Kootenay is concerned, I am afraid it is going to hit us pretty hard. Our only market is in the prairie provinces. With reciprocity in force it would be easy for American lumbermen to swamp us any time business was dull on this side of the line, though we have legislation which is aimed to prevent 'dumping.'

"Kootenay will also be affected more or less by the proposal to abolish the duty of fruit, but I doubt if this will prove as serious as the orchardists imagine, seeing that the duty at the present time is only 10 cents the box. Still, the fact remains that the fruit growers, like the lumbermen, depend on the prairie provinces for their market.

"My own idea is that one must consider the matter from the national standpoint. I am sure our Minister of Finance, Mr. Fielding, who is a very able and conscientious man, has satisfied himself thoroughly that the proposed reciprocity agreement will be advantageous for Canada as a whole. Any of us who happen to have our interests in a section which will be more or less adversely affected will have to make up our minds to sacrifice local interests for the general good of the country."

# Power House

## Proper Size and Strength of Leather Belts

The question of the proper size of a leather belt for a given power transmission resolves itself into a question of selecting various factors. These factors have been worked out by experiments, by analytical methods, and in practice. This article will simply deal with the facts established and endeavor to put them into convenient form for use in actual practice.

The horse power that a belt will transmit depends upon the effective tension and the belt speed. The effective tension depends upon the difference in the tensions of the two sides of the belt and on the surface friction, which depends upon the ratio of the tensions and the angle of wrap.

The creep of the belt depends upon its elasticity and the load, and experiments have shown that this should not exceed 1 per cent. in good practice. In order to keep this creep below 1 per cent., it is necessary to limit the difference of tension per inch of width of single belt to 40 pounds. The corresponding values for double and triple belts are 70 pounds and 100 pounds per inch of width. These figures are based on an average value of 20,000 for the running modulus of elasticity of leather belting.

Table 1 has been prepared on the basis of these limitations, and gives a value for F in the equation

$$HP=\frac{V\times W}{F} \quad \text{or} \quad W=\frac{HP\times F}{V}$$

Table 1.—Details of Belt Action.

| Diameter of pulley. | Under 8 inches | 8-36 inches | Over 3 feet | Under 14 inches | 14-60 inches | Over 5 feet | Under 21 inches | 21-84 inches | Over 7 feet |
|---|---|---|---|---|---|---|---|---|---|
| Thickness of Belt. | Single. | Single. | Single. | Double | Double | Double | Triple | Triple | Triple |
| Factor ..... | 1100 | 920 | 830 | 630 | 520 | 470 | 440 | 370 | 330 |
| Difference of tensions | 30 | 36 | 40 | 52.5 | 63 | 70 | 75 | 90 | 100 |
| Per cent. of creep .. | .74 | .89 | .99 | .74 | .89 | .99 | .74 | .89 | .99 |
| Ratio of tensions.... | 2.00 | 2.50 | 3.00 | 2.00 | 2.50 | 3.00 | 2.00 | 2.50 | 3.00 |
| Tension on tight side | 60 | 60 | 60 | 105 | 105 | 105 | 150 | 150 | 150 |

Experiments and practice have shown that a belt of single thickness will stand a stress of 60 pounds per inch of width and give good results, that is, it will only require an occasional taking up and will have a fairly long life. The corresponding values for double and triple belts are 105 pounds and 150 pounds per inch of width, provided the pulleys are not too small.

Experiments have shown that on small pulleys the ratio of the tensions should not exceed 2, on medium pulleys 2.5, and on large pulleys 3. The larger the pulley, the better the contact is; the thinner the belt, the better the contact is for the same size of pulley. When the pulley diameter in feet is three times the thickness of the belt in inches, or in this proportion, we get equivalent results for different thicknesses of belts. This gives us a method of classifying our pulleys. The belt has to adjust itself in passing over a pulley due to its own thickness. Some adjustment is also necessary on account of the crowning of the pulley. These adjustments account for the different ratios for the various pulley diameters. The effects of the crown and pulley diameters are not usually considered in belt rules, which is a grave mistake. The ratios are for 180 degrees wrap and decrease with less contact.

in which HP is the horsepower, V the belt velocity in feet per minute, and W the width in inches.

Table 2 gives corrected values for F when the arc of contact or wrap is greater or less than 180 degrees. On large pulleys the creep may exceed 1 per cent. if the wrap is over 180 degrees, as the increased friction gives a greater difference of tensions.

To illustrate the use of the tables, we will take the following examples:

How much horsepower will a 4-inch single belt transmit at a speed of 4,600 feet per minute passing over a 12-inch pulley? The factor is 920, therefore

$$\frac{4600\times 4}{920}=20 \text{ horse-power.}$$

How wide should a belt be in order to transmit 50 horse-power at 2,00 feet per minute on 36-inch pulley?

$$W=\frac{50\times 830}{2{,}000}=20.7\text{-inch single belt.}$$

This gives us a width of single belt which is beyond the usual limit, 8 inches being considered good practice

Table 2.—Corrected Values of Belt Factors for Various Contacts.

| 220° | 210° | 200° | 190° | 180° | 170° | 160° | 150° | 140° | 130° | 120° |
|---|---|---|---|---|---|---|---|---|---|---|
| 980 | 1010 | 1040 | 1070 | 1100 | 1140 | 1180 | 1220 | 1270 | 1330 | 1400 |
| 810 | 830 | 860 | 890 | 920 | 950 | 990 | 1040 | 1100 | 1170 | 1240 |
| 730 | 750 | 770 | 800 | 830 | 860 | 890 | 930 | 980 | 1030 | 1100 |
| 500 | 570 | 590 | 610 | 630 | 650 | 670 | 700 | 730 | 760 | 800 |
| 460 | 470 | 480 | 500 | 520 | 540 | 570 | 600 | 630 | 660 | 700 |
| 420 | 430 | 440 | 450 | 470 | 490 | 510 | 530 | 560 | 590 | 630 |
| 390 | 400 | 410 | 420 | 440 | 460 | 480 | 500 | 520 | 540 | 560 |
| 320 | 330 | 340 | 350 | 370 | 390 | 410 | 430 | 450 | 470 | 490 |
| 290 | 300 | 310 | 320 | 330 | 340 | 360 | 380 | 400 | 420 | 440 |

for the maximum width of a single belt.

$$W=\frac{50\times520}{2,000}=13\text{-inch double belt.}$$

How wide should a single belt be in order to transmit 2 horse-power at 600 feet per minute over a 4-inch pulley with 140 degrees wrap?

In this case we take the factor, 1,100 from Table I and in Table II. find a corrected value for 1,100 under 140 degrees of 1,270.

$$W=\frac{2\times1,270}{600}=4.23\text{-inch single belt.}$$

How wide a belt is required for 300 horse-power at 2,000 feet per minute over 10-foot pulley?

$$W=\frac{300\times470}{2,000}=70.5\text{-inch double belt.}$$

This is too wide. Good practice calls for a change to triple at 48 inches unless for some special reason a narrower belt is necessary.

$$W=\frac{300\times330}{2,000}=49.5\text{-inch triple belt.}$$

The belt speed is limited by centrifugal force, but below 5,000 feet per minute the loss on this account is largely compensated for by the increase of friction due to the decrease in the time element of contact, caused by increased velocities.

The results given by these factors are well within working values and the belts will probably transmit 50 per cent. more power than these factors give, but at the expense of the life of the belt. A liberal allowance at the beginning means less annoyance, fewer delays in taking up the belts, longer life, and less cost for renewals and repairs.

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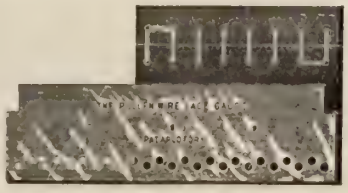

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# Furniture and Veneers

## Varnish: It's Nature and Composition

W. B. R.

It is not sufficient that the varnisher understands varnish, as he usually does, but he should also know something at least of its nature and composition. This knowledge he can only possess by ascertaining how the liquid is made and of what it is made. This information will be of great service to him in the application of the varnish.

A number of gums are used by the varnish-maker in the preparation of the various products of his factory, according to what the product is intended to accomplish, though, of course, not all the gums are usually to be found in any one factory. As a rule each manufacturer confines himself to a certain line of goods and does not attempt to make every known varnish.

### Zanzibar and Kauri Gums.

The best of the fossil gums is that known as "Zanzibar," and for the furniture and cabinet finisher there is nothing that quite takes its place. But it is exceedingly scarce now, as also is Benguela and a few others "kauri" instead, and a most excellent gum it is, though, of course, not equal to the Zanzibar. Kauri gum is found in great abundance in both the fossil and the recent form, in the northern part of Auckland, New Zealand. That from the tree, or "recent," as I have called it, is inferior to the fossil gum and much cheaper.

There is an area of about 1,273 square miles in Auckland where the fossil gum, as well as the tree, is found. In some places the gum is found at two and three different levels, thus doubling and trebling the amount available. This is very gratifying to know. It means that there will be plenty of gum for many years to come.

Kauri gum varies considerably in color, that found in the low lying country being very dark, and becoming almost black upon exposure; while its wearing qualities are just as good as a much lighter sort, yet its color is against it for good work. Usually the darker parts of the gum are the harder also, and hence the best wearing. Some kauri is so pale that it is used in the place of amber for pipe pieces, etc. The dark sells at a much lower figure than the light-colored gum.

### Varnish Color and Durability.

Taking two varnishes made upon the same formula, one from light gum, the other from dark, the latter will usually be found more durable. But the making has much to do with this, dark varnish being made at a higher degree of heat than the light colored, and hence stronger driers and gums can be used in making the darker varnish, producing a stronger varnish, one that will withstand water and exposure generally than the lighter varnish. This rule is true also with the cheaper kinds of varnish, made from manila or resin. The dark varnish is run with a close melt, to use the factory terms, and they use dark and strong resin, usually treating it with lime to further harden it. Still, the dark varnish will not sell as well as the lighter.

### Oil and Spirit Varnishes.

We may divide the varnishes in common use into three classes, namely, fixed oil varnishes, volatile oil varnishes, and spirit varnishes. The solvents used are alcohol for the spirit varnishes, turpentine for the volatile varnishes, and for the fixed oil varnishes turpentine and linseed oil, but which are not strictly speaking solvents because the gums of which these varnishes are composed have to be melted and then combined with the oil and turpentine, all by heat. Alcohol will dissolve gum shellac cold. Turpentine will do the same for the several softer gums, like dammar, for instance.

The toughest varnish is that made from shelac and alcohol. The most brilliant varnish is that made from gum mastic, and the hardest from gum sandarach. The varnish having little oil is known as "short oil" varnish. A sample may be found in the rubbing varnishes, which have good lustre and dry hard, being suitable for the rubbing process. The varnish with much oil in its composition is known as "long oil" varnish and has a large percentake of oil, being useful where exposure to the weather or to hard wear is to be anticipated.

Carriage varnish is an example of the long oil kind. You have noticed that a fine carriage finishing varnish is not very hngh in brilliancy. This is because of the oil in it, oil drying rather flat. But gum itself, or with little oil, dries with a gloss. This is true of resin and kauri alike. Sometimes you have had trouble with your rubbing varnish, it sweated out after the rubbing, and this may have been due to its having too much oil.

### Seasoning the Varnish.

It is of very great advantage to varnish to stand a long time in the tanks, but this necessarily adds to its cost, though for the best work the increased cost should not be an objection. The results will justify the price every time. Varnish becomes much brighter and clearer by standing in the tank, for every particle of "foots" or flocculent matter will be deposited in the meantime. It is supposed, however, that the oil used in making a good varnish is free from foots. Still there will be some sediment from the best varnish after it has stood for months in the tank. The oil used for this purpose is boiled for varnish making.

### Composition of a Varnish.

We are permitted to give an example of varnish-making formula from "Drugs, Oils and Paints," show the composition of a varnish. Here is the formula for an oil varnish: Zanzibar copal, 2 pounds; settled varnish oil, 7 pounds, and turpentine, 7 pounds. A medium oil varnish calls for only 3 pounds of oil and ½-pound more turpentine than in the first formula. A quick drying varnish is the same as the first one, but with only 1½ pounds of the oil.

It is a very simple operation, in theory, making varnish. I have known the very finest carriage varnish to be made in a common paint shop. I read recently that many years ago, in our own country, it was the custom for the varnishmaker to travel around from shop to shop and make the varnish right on the spot, just as in olden times the shoemaker and tailor visited folks and did the work right there. I do not vouch for the truth of this statement as to the varnish-maker. The operation of varnish-making calls for the melting of the gum in a copper pot, and in another vessel heat up some linsed oil and then add it to the melted gum. When these ingredients are mixed together and allowed to to cool somewhat, the turpentine is added. The oil and

gum unite readily but it requires some further cooking to make the union perfect; otherwise the gum would settle out.

### Varnishmaker a Magician.

Of course the varnish factory is not quite so simple a thing as this would seem to indicate. Oh, no. The factory has to provide for so many diverse needs that the maker must be a sort of magician. I do not know very many of his secrets, but I know some of them. I happen to know how to get two or more kinds of varnishes out of one tank. I have been reliably informed that the modern varnishmaker can produce several hundred different varnishes by a process known to him as blending. He has on hand, in stock, what he calls varnish oils. Among these materials are coach oil, furniture oil, etc. Thus, to produce furniture varnish he melts his gum and adds some furniture oil. For coach varnish he does the same thing, only this time using coach oil. There you are.

The same informant, *vide* an article in "American Paint and Oil Dealer," gives this formula to show more definitely the process. It is intended for a good furniture varnish with a high gloss: 450 pounds hardened resin; 600 pounds kauri dust or chips; 36 gallons furniture oil; 120 gallons turpentine, and 80 gallons benzine. This will make from 330 to 350 gallons of varnish.

### Specialties in Varnishes.

To produce a very pale varnish, bleached linseed or poppy seed oil must be used. Such an oil is prepared by boiling for a certain length of time with one or more of the various salts of the heavy metals, such as lead or manganese, or both in combination, and then adding them to the melted gums. When finally made the varnish is filtered and stored in settling tanks to age.

A varnish is made for a certain specific purpose but the one varnish may serve the purpose in different ways. Thus, a coach varnish will be adapted for coach or carriage work, as for a hardwood or grained floor. Hence, we may honestly label the one varnish "Coach" or "Exterior" varnish.

If the varnish is to be exposed to rain or water in any form, as on a vehicle, or on a counter top, it must contain a large percentage of hard gum, and yet for carriage work we know that a too hard varnish would crack. But the action of the water is different in the two cases, rain covering the part completely, running off, and drying as soon as out of the weather, while water on a bar or counter top may lie in a small area for some time so that the oil in the varnish will absorb the moisture like a sponge. Wood oil is useful in this latter case. It is more waterproof than linseed oil and dries from the bottom up, while linseed oil dries from the top down. It is rather difficult to manage in varnish-making but when properly incorporated it makes a very good varnish for use where there is much moisture. It does not make a glossy varnish on outside work it becomes quite lustreless.

There is a varnish made to stand a high degree of heat, of which we have baking or enamel varnish. This is effected by the use of a very hard gum whose melting point is very high, higher, of course, than common copal varnish. Coat an article with baking varnish, colored as desired, and place it in an oven whose heat is about what would be required to make a loaf of bread, and the varnish will enamel beautifully and become hard as metal. This varnish would be rather short in oil.

The cheap grades of varnish used in the furniture finishing room are made from such gums as manila copal and resin. But resin varnish is better than formerly for the varnish-maker knows how to treat it now to make it tougher or less brittle. I do not know what he does to the resin but in a general way I understand that he uses certain zinc salts, lime, etc., and adds some China wood oil also, producing a very fair varnish for many purposes.

### Some Useful Varnish Formulæ.

*Varnish for Rosewood*—Place in a tin can 1 gallon of alcohol, 12 ounces of gum mastic, and 1 pint of turpentine (copal) varnish. Set in a warm place and shake it occasionally until the gum is dissolved. Then strain and put in a can for future use. If too heavy, dilute with copal varnish.

*White Shellac Varnish*—This is made with bleached shellac and here is one way of bleaching the gum. Dissolve one part of pearl-ash in eight parts of water; add one part of gum shellac, then heat the mass to the boiling point. When the shellac has all dissolved, cool the mass and saturate it with chlorine until the lac has settled. This will be the bleached shellac which, when cut with alcohol, makes a colorless varnish.

..Copal Varnish—Dissolve one pound of pale copal gum in a quart of hot linseed oil and simmer on a water bath; add one pint of turpentine, then strain. Thin it with turpentine if necessary to thin, and seal for use.

*Varnish for Furniture*—White beeswax, eight parts; pale resin, two parts; Venice turpentine, one-half part; heat gently, with constant stirring. Then pour the mixture into a glazed pot while hot and add six parts spirits of turpentine. After standing 24 hours the mass is like soft butter, being, in fact, a wax polish. The furniture that is to be coated should be carefully washed with soap and water and then dried. This polish is not as brilliant as shellac polish but it makes a very fine finish and is much admired by all who see it.

*Varnish for Toys*—This work requires a very white yet durable varnish. It may be made with pale copal, 7½ ounces; camphor, one ounce, and alcohol of 95 per mastic, one ounce of Venice turpentine, which dissolve, then strain. This varnish is capable of being polished when hard-dry.

*White Hard Spirit Varnish*—One pound of gum sandarach, six ounces of turpentine, and three pints of alcohol (65 over proof). Dissolve.

*Resin Varnish*—Not intended for the best class of work, of course, but useful for some purposes. It has a high gloss and hard surface. Pulverize 10 ounces of pale resin and put with it one pint of turpentine; set on stove in tin can and let it boil for 30 minutes. When the resin is all dissolved let it cool and it is ready for use. Be careful that the fire does not get to it when on stove. Watch it closely until the job is done.

### Shellac and Other Varnishes.

—*Making Shellac Varnish in a Small Way*—Place 8 ounces of gum shellac in a wide-mouthed 8-ounce vial and add five ounces of alcohol. Cork, and let it stand in a warm place until the gum is dissolved. Shake it frequently, filter, add more alchol to assist the filtering, and change the filter from time to time. For common use it need not be filtered.

*Varnish for Patternmakers' Use*—Dissolve 1 pound of gum shellac in one gallon of alcohol. If color is wanted, add sufficient ivory black broken up in a little alcohol.

*Oak Varnish*—This varnish is suitable for common hardwood work of any description. Dissolve 3½ pounds of pale resin in one gallon of turpentine. The varnish may be made more elastic by adding to the above 20 ounces of Canada balsam. Another formula is: Pale resin, three pounds, melt and add two pounds of Venice turpentine and one gallon of pale drying oil. Cool a little and then thin with turpentine.

*Varnish for Metal Surfaces*—To make varnish adhere more perfectly to polished metal surfaces, one part of boracic acid should be added to 200 parts of varnish. This composition will adhere firmly and become so completely glazed as to be removed without difficulty. But be careful to not add too much boracic acid, says the "Metalworker," it injures the gloss.

*Varnish for Foundry Patterns*—Here is a patented German formula that seems to be very good. It is claimed that the varnish dries as soon as applied, assuring the pattern a smooth surface, thus ensuring an easy slip out of the mould, and which prevents the pattern from warping, shrinking or swelling, and is quite impervious to moisture. The varnish is prepared in the following manner: Thirty pounds of shellac, 10 pounds of manila copal, and 10 pounds of Zanzibar copal are placed in a vessel which is heated externally by steam and stirred during four to six hours, after which 150 parts of alcohol is added and the whole heated during the hours of making up to 87 degrees C. The varnish may be dyed with some orange color and is then ready for coating the patterns. Zanzibar gum being scarce now, perhaps kauri would do.

*Varnish for Mahogany in a Small Way*—When it is desired to have a nice varnish for a piece of mahogany furniture, say, it may be prepared in this way: Put in a bottle two ounces of gum sandarach, one ounce of gum shellac, one-half ounce of gum benjamin, one ounce of Venice turpentine, and one pint of 90 per cent. alcohol. Color it red with dragon's blood, or yellow with saffron. Stand in a warm place until the gums dissolve, then strain for use.

# The Making of Mouldings

JOHN HOOPER.

Few branches are there of the woodworking trades where the subject of mouldings is not an important one. To some they represent practically the only outlet for decoration, as, for instance, picture frames, while the joiner finds them valuable media for ornamenting his otherwise strictly utilitarian work. The patternmaker softens down angles and bases with them, while the cabinetmaker in enriching furniture with moulded details takes the fullest advantage of their possibilities, both decorative and constructive.

With such a wide field, therefore, interested in the art of shaping wood or in the production of mouldings, but small apology is needed for an article devoted to this particular branch—to be followed, it is hoped, with another one dealing more especially with the practical aspects of the work.

Dating back from early historic times, the subject has received a deal of attention, as is evinced by an examination of ancient work. The word "moulding" is obtained from the French word *mouler,* meaning "to

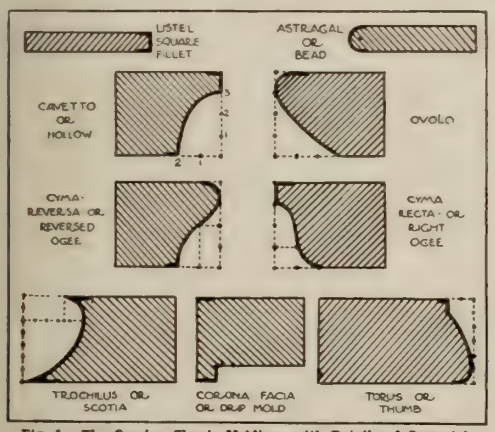


Fig. 1. The Grecian Classic Moldings with Details of Geometric Constructions

mould," although they were invented by the early Egyptians who received the fundamental idea from a natural basis, i.e., the curvature at the tops of their reed and mud dwellings which were constructed by binding together bundles of reeds, forming the roof also in this way. It is supposed that the action of the sun and rain upon these structures caused the loose ends above the top binding to curve slightly outward—and this curvature was accentuated by the downward pressure of the roof covering in the form of a crude cornice. This hypothesis is borne out by a study of the period immediately succeeding the hut age and, in fact, through an age of wood to the time when stone was used for building we find the simple cavetto or hollow cornice, obviously inspired by the earliest houses.

### EARLY DECORATION OF DOWELS.

These early Egyptian builders in addition to their remarkable building abilities possessed an instinctive decorative faculty. To such an extent was this practiced by them that even dowels used to fix or key up stones in buildings have been discovered, carved and decorated —both of wood and stone, although after they were once fixed they were completely hidden. But this is a slight digression from mouldings proper. My reason for introducing the Egyptian element into this article is because of its important bearing upon the subject, especially the decorative side, and also because "classic" mouldings of Greek and Roman origin, the true basis of moulding design, are but developments of Egyptian ideas.

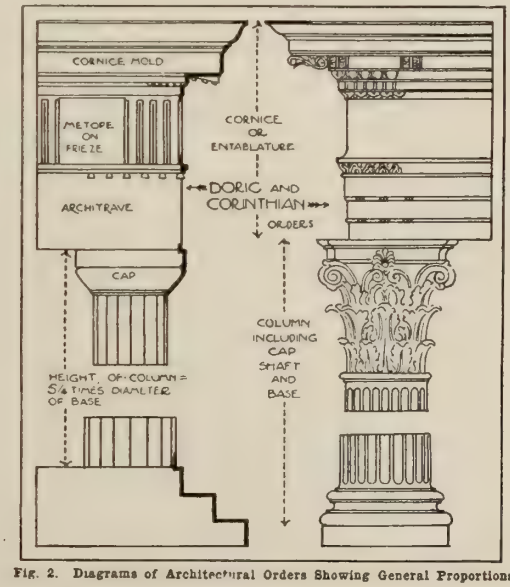


Fig. 2. Diagrams of Architectural Orders Showing General Proportions

To follow the steps which led to the Classic period would be a long task, but a comparison of the familiar lotus and honeysuckle detail of Egyptian origin with the Greek palmetto and anthemion ornament will show in marked fashion, a decorative evolution, and are distinct steps in the further processes of development in Greek architecture which finally arrived at such a pitch of perfection as to be regarded at the present day as the acme of proportion, design and refinement. To study and understand moulded work one must have recourse

to the ancient Greek and Roman periods, especially to the five styles or orders of architecture.

### Chippendale on Cabinetmaking.

Chippendale in the 18th century advocated this, though, and in the preface of his book of designs quaintly says: "Of all the arts which are improved or ornamented by architecture, that of cabinetmaking is not only the most useful and ornamental, but capable of receiving as great assistance from it as any whatever. Without an acquaintance with this science and some knowledge of the rules of perspective, the cabinetmaker cannot make the designs of his work intelligible nor show in a little compass the whole conduct and effect of the piece. These, therefore, should be carefully studied by anyone who would excel in this branch since they are the very soul and basis of his art." Following this utterance, and preceding the actual design portion of the book, Chippendale gives the five orders or styles of architecture in detail although such an elaborate treatment of this necessary subject appears rather overdone, and more especially so when we consider that his book was published by subscription and was essentially a patron's rather than a mechanic's or draftsman's work. Here it may be mentioned that all Chippendale's mouldings show distinct evidences of their classic prototypes and most critics will admit that his moulding examples are characterized by graceful outline, good proportion and fitness for their purpose to a greater extent than any of his contemporaries.

The mouldings displayed in these orders are of two different characters. The first consists of the purely Greek type found in the Doric, Ionic and Corinthian with the curves based upon elliptical, parabolic and hyperbolic curves. These are illustrated in fig. 1, showing how they may be drawn geometrically although there is no evidence to show they were described by the ancients by these methods. They were in all probability drawn freehand but the methods shown produce approximately correct outlines.

It will be seen from the diagrams that there are nine primary mouldings or elements which are given their real terms in addition to the more common or factory names. The first, i.e., Listel, or fillet, acts as a dividing member between curved elements, while the astragal, or bead, is used in a variety of ways in conjunction with two fillets. Its most popular use is as a shutting detail on the meeting stiles of doors. With a sunk fillet it is

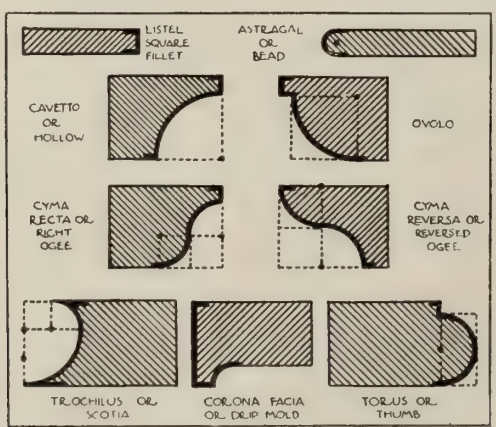


Fig. 3. Diagram Illustrating Some Geometrical Constructions of Roman Moldings

termed a "quirk bead," while returned on two faces it is the joiner's "staff bead." The cavetto, or hollow, and the cyma recta, or ogee, are used as the top or crowning members in cornices. The ovolo is generally used as a bed moulding under a "corona"—carved with egg and tongue detail—and the torus is of especial use in surbase mouldings.

Probably the most interesting is the "corona." It was originally executed in stone as a wide soffit in cornices of ancient structures. Capillary attraction, however, caused water to soak down the mouldings and along the horizontal soffit of the corona and thence down the front of a building and causing unsightly weather marks. To obviate this trouble a throating was introduced bringing the corona to its present form. It is still used in buildings for its original purpose, and causing the water to fall or drip from the throating. Hence its name of "drip" moulding.

### Thumb and Bead Mouldings.

There is also shown the "trochilus" which when inverted is called a "thumb" moulding, from its resemblance to the outline of the top joint of a thumb. The "torus" is really an enlarged version of the bead or astragal and is used chiefly in line with, or below, the eye line.

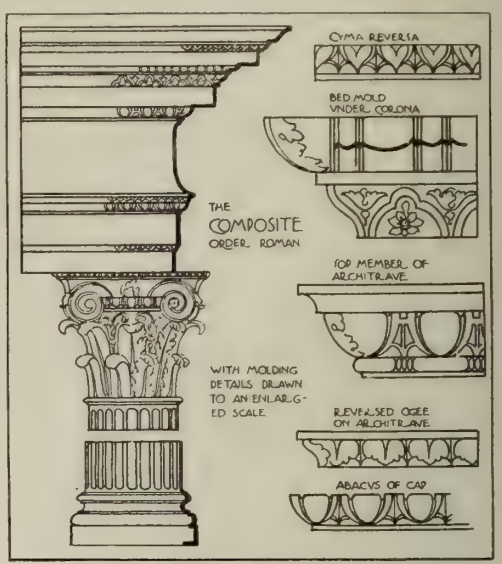


Fig. 4. The Composite Order—Illustrations of Roman Moldings

All of these primary elements have been obtained from the entablature or cornice of an order. The entablature, it may be remembered, is composed of architrave or frieze moulding, frieze, and cornice moulding, and the position in an actual building is illustrated in fig. 2. The Doric is the most ancient order—with simple lines and sparse ornament—while in the Ionic, not here illustrated, we find an increased use of ornament which culminated in the third order, i.e., the Corinthian. See also fig. 2.

Roman mouldings are based upon arcs of circles and the method of constructing these is illustrated in fig. 3. Their uses are identical with their Greek contemporaries and they display in their bolder outlines the more forceful character of the Romans. These are derived mainly from the "Tuscan," an essentially Roman order, and from the "Composite," which was originated by combining characteristic features of the Greek, Ionic and Corinthian orders. All mouldings were made bolder and coarser in character, this applying to both outline and ornament. The Romans did not possess the artistic taste of the Greeks and although they extensively loved and patronized the arts they attached no particular important to producing it and relied upon the importation of Greeks to execute their works. These artificers labored under conditions different from those prevailing in their native land and in the absence of ideals and enthusiasm failed to reach their previous standards, with the result that Roman work is not characterized by the same beauty of ornament or proportion. This can be distinctly seen from the preceding sets of diagrams.

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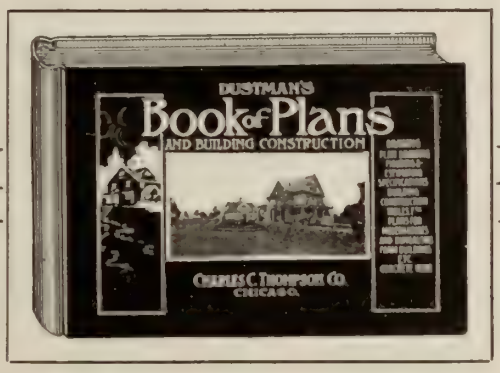


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# Boxes and Cooperage

## Noon-hour Talks at the Modern Box Factory

By J. C. Taylor.

"Jackson, the nailer, is in trouble this time, and I see him coming over here to make policemen of us by telling it to us," said Smoot, the planer man, as he cut a liberal slice from Buck's plug and settled down for the regular noon-hour rest with his back against a post.

"Why, what is there to get him into trouble? He is as regular as a clock, as faithful as a good dog, and is the whole show as far as that hand-nailing department is concerned," and Buck looked as concerned as if the trouble were his own when faithful old Jackson joined the group, a far-away look in his eyes and a troubled expression on his face.

"Spit it out, Jackson," he said, "for if it's a factory problem, Smoot can give some mighty wise advice, if nothing more, and if it's somebody you want thumped I'll give my off-bearer, Jans, a quarter to waylay him, for Jans is aching for a little exercise of that kind, anyway."

"It's a Jew and a Dutchman. We can talk all we please about our Yankee tricks and smartmess, but they've got me skinned, and I'll be blamed if I can figure out how they do it," and Jackson looked more troubled than ever.

"Well, but which Jew and which Dutchman, and what about it all?" asked Buck. "We can't wrestle with trouble with just a little short tail hold like that. Spit it out and let us see just where and how it's hurting you, and then we will see what we can do with it.'

"Well, you know that Jew that runs a second-hand box business over on Dog Alley?' "

"Yes, we all know of him, but what has he got to do with it—he only patches up old boxes?"

"That's what he used to do, patch old boxes, but now he has put in a gasoline engine, a couple of saws, and has gone after some of our customers that use hand-nailed boxes, and what he is doing to us is a plenty. Mr. Thornly came to me the other day and told me that the 'Old Man' was in a towering rage because he finds that this Jew has a Dutchman there that can nail up boxes cheaper than we are doing it here. He wouldn't have cared, he said, if the Dutchman had been doing it for nothing, or nearly nothing, but he got an insight into his pay envelope, and he is making more money than they are giving me. Now, ain't that a nice proposition? Here's a Dutchman making more money than I am, and I have been nailing boxes for ten years, and while he's making all that money they are turning out boxes cheaper than we can make them and taking some of our best customers away from us. The 'Old Man' says there is something rusty in the headwork of this factory of his, and has demanded that Mr. Thornly should haul me up on the carpet and insist on an explanation. So there's where I stand, and I'll be dad-swaddled if I know what to say or do. I know I can nail up more boxes in a day than that Dutchman, but the evidence is so plain that I can't dispute the fact that he is nailing them up at a smaller price than they are paying me, and yet is making more money than I am."

"Now, Jackson," said Smoot, "let us get this thing so straight that there is no chance for a misunderstanding. If I understand the matter right, they pay you so much each for nailing up these boxes, and at the rate they pay you, you can make from $12 to $15 a week. Is that right?"

"Yes."

"And this Dutchman gets a cent less per box, but even at that he makes about $18 a week?"

"That's the way they give it to me."

"Well, it certainly looks like he would have to make more boxes than you in the same time to get more money, when his price is under yours. There's nothing else you can make out of it, unless there is some way of figuring that I never heard of."

"Well, that's just it," said Jackson, sadly, "and I know he can't make more boxes than I can, for he used to work here with me, as you know, and he couldn't turn out more than $10 worth a week to save his neck. But the facts are just as I have told you, and they come too straight to dispute. The 'Old Man' got them himself, and he is simply red-headed about it; says there is an explanation due from me as to why I can't nail up boxes as cheaply as a man that has a record of not being able to make near as many in a day as I can. It gets me, and I'd throw up my job if it wasn't that I hate to be outdone in any such a manner."

"Maybe they've got a nailing machine," said Buck.

"No, they do it by hand, and we can't figure out any way to beat our own hand work on these boxes with a machine, or we would have had one at it long ago."

"Maybe they use cement-coated nails," said the "Imp," a bright boy that works behind the rip saw. "I heard a cement-coated salesman telling Mr. Thornley that their nails not only hold better than plain nails, but drive easier, too."

Jackson reached out to take the "Imp" across his knee for butting into a man's problem with a joke like that, but the "Imp" dodged, and as Mr. Thornly, the foreman, came up about that time, Jackson did not make any further effort to punish him.

"Well, Jackson," said Mr. Thornly, "you have my sympathy in this box-nailing matter, and I am ready to do anything to help the matter along, but the proprietor insists that we have simply got to find the solution of the matter; for, while he doesn't care so much for the losing of an order or two, it hurts his pride to think that such a concern as that can beat us out in making boxes, and there is nothing to it for us but to find some way of making them cheaper than the other fellows, and, of course, we must do that without reducing your income. I am ready to get any appliances you may want that will help the cause along, if you will just name them."

"That's the trouble, Mr. Thornly. I can't think of a single thing that will help us out in the matter, and I'll be blamed if I know what to do."

"I'll tell you, Jackson," said Mr. Thornly, "let's you and I go and look the situation over together, and see if the two of us can't figure out something. Then, if we can't, we will invite Buck and Smoot to hold a caucus with us, for they've got ideas enough to stock two box factories, and then some."

"Say," said the Imp, as Mr. Thornly and Jackson went off toward the nailing department, "if this ain't the brightest bunch I ever saw. Jackson wouldn't tumble if you hit him with one of his own ugly ham-

mers, and he wouldn't know an idea if it came to him labeled from one of his own boxes."

"Well, Imp," said Buck, "if you've got a tip, spit it out and quit your monkey business before I scalp you," and he made a grab that left the Imp standing bareheaded, but defiant.

"Well, I know two things," said the Imp. "I know you all think you are a mighty lot smarter than you are, and I know how it is the Dutchman can nail up boxes cheaper than Jackson, and still make more money."

"Then for heaven's sake tell us about it."

"What do I get out of it?"

"You'll get scalped if you don't.

"That's mighty encouraging, but I'll get the satisfaction of showing some of you that you don't know it all, so here goes: The Dutchman gets so much a box for nailing, and if he worked right hard he could maybe make $8 or $9 a week at it, but that Dutchman don't do a thing but hire kids at $2.50 and $3 a week. The $3 kid is 'Red' McClosky, who told me about it, and 'Red' can nail as many boxes as the Dutchman, so you see with what the two kids nail and what the Dutchman nails himself there is enough to pay the kids and still leave about $18, and that's how he makes more money than Jackson and does less work at a cheaper price. Don't you think you are a smart set not to tumble to that?"

## Stave Timber Estimating in the U.S.

The modern estimator of stave timber is so trained to his work that not only are all the trees on a prospective tract numbered, but he carefully estimates the number of different kinds of staves and heading he thinks can be produced from each tree so that when he is through estimating a tract of timber he makes out a tabulated report of so many staves of certain size, so many of another size, and grade, so many heading, and so on. So many trees, so many inches in diameter, or so many trees and an average of so many inches in diameter at the base, and he also estimates the average length of trees that can be worked. In other words, estimating stave timber now is real estimating, and not mere guess work as it was in the days gone by.

Just what relation exists between estimating timber for staves and estimating saw timber is not so easy to explain. Some estimate for both, but those seeking stave timber alone give but little attention to what it might produce in the way of lumber except that now and then they combine the manufacture of staves and ties, or after they have gotten the stave timber out figure on how much tie timber they may have to sell some one else. Then they will estimate the probable amount of the timber as well as staves.

This careful esitmating applies specifically to oak for the making of oil, whiskey, and beer staves, and the estimator must familiarize himself with the turnout and come to understand how many staves may be expected from a section of a tree so many inches in diameter and he must also learn the kind of staves one may expect to get out of each tree. He judges his trees for soundness pretty much as the saw mill calculates, but his estimates for output are made on a different basis. He works from the basis of the number of staves of a given kind that may be produced, whereas the saw mill estimator figures from the basis of a thousand feet board measure.

Sometimes, of course, there is an effort to reduce one to the other so as to understand from a board measure estimate how many staves of a given kind will be expected, but generally in estimating for oak staves one should consider the timber from a stave basis. That is, the stave timber and not give regard to what it figures out in board measure. If there is saw timber on the tract he may estimate it in board measure, but the only safe and sure plan in stave estimating is to take the stave measurement and estimate the number of staves of a given kind that may be expected from each tree.

This careful estimating, of course, is confined quite largely at least to buying oak timber for tight barrel staves. In the slack barrel trade it is a different basis entirely. The basis of measurement in slack barrel stave making is generally the cord. Sometimes timber is estimated by the thousand feet and figured from that basis and reduced to the number of staves, but usually the estimates are by the cord and the work in timber of scrubby nature, consequently there is a greater element of uncertainty and not the same careful effort to tabulate exactly the number of staves one may expect. In other words, there is still an element of guess work about estimating for slack barrel stock, because it is frequently made from small timber and from scrubby timber that will not do for sawmill work or staves are made along with sawmill operations, part of the timber going into lumber and part into staves.

In the estimating of oak timber, however, it is reduced these days to a mighty fine science and a man either know this side of it thoroughly or he must have some reliable estimators who can practically tell him before the timber is bought, the cut, just how many staves of the different sizes and grades he may expect from a given tract. If he doesn't know these things he is working in the dark and stands a chance to lose heavily, because good oak stumpage, the kind used for making staves, is mighty valuable these days and it is easy to pay more for a tract than one is able to get out of it. So, careful estimating has come to be an important part of the tight barrel stave industry.

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Red cedar, which grows plentifully in Alabama and Florida, is the best wood in the world for making lead pencils. There are six lead pencil factories in the United States—two in New York, two in New Jersey, one in Illinois and one in Massachusetts. Together they employ more than 2,000 people, pay nearly $700,000 in wages annually, and their yearly output, at the rate of 12,000 gross daily, is worth more than $2,000,000. They are now making as many pencils as all of Europe combined; and supply nine-tenths of the home demand and ship a considerable quantity abroad. The best pencil graphite comes from Siberia, Mexico, Bohemia and Ceylon. The Germans are the best graphite makers, and the leading pencil factories in the country have their graphite prepared in Germany and shipped ready for the pencil.

Some time since a correspondent of the "Woodworker" made a complaint against the adjusting of planer cylinders up or down by means of screws in the frames. This adjustable system is one of the best things about the modern machine, and the solid sash makes it more so, because it keeps the boxes in perfect line, and raising one end of the cylinder does not make the boxes bind in the least. In planing fine work, where perfect thickness is required, what can be better than the adjusting lifting screws? If a man tries to alter the thickness of either edge of his stock by setting out the knives, he has a long, serious job on his hands, while altering the cylinder by means of the lifting screw is only the work of a few minutes at the longest.

# BUYER'S DIRECTORY

**BABBITT METALS.**
Shurly Dietrich Co., Ltd., Galt, Ont.
Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

**BALUSTER LATHES.**
C. Mattison Machine Works, Beliot, Wis.
Ober Mfg. Co., Chagrin Falls, O.
Baxter D. Whitney & Son, Winchendon, Mass.

**BAND SAW FILING MACHINERY.**
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
Shurly Dietrich Co., Ltd., Galt, Ont.
Fay & Egan Co., Cincinnati, Ohio.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

**BAND SAWS.**
Shurly Dietrich Co., Ltd., Galt, Ont.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
R. H. Smith Co., Ltd., St. Catharines, Ont

**BAND SAW MACHINERY.**
Mussens, Ltd., Montreal.
Canada Machinery Agency, Montreal.
Berlin Machine Works, Ltd., Hamilton, Ont.
Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

**BAND SAW MILLS.**
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Monteral.
Mussens, Ltd., Montreal.
Fay & Egan Co., Cincinnati, O.

**BAND SAW STRETCHERS.**
Fay & Egan Co., Cincinnati, O.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

**BENDING MACHINES.**
Mussens, Ltd., Montreal.
Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.

**BELTING.**
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Sadler & Haworth, Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
H. W. Petrie, Ltd., Toronto.

**BELTS (Endless).**
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Sadler & Haworth, Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt.
H. W. Petrie, Ltd., Toronto.

**BELT CEMENT.**
Sadler & Haworth, Montreal.

**BELT FASTENERS.**
Sadler & Haworth, Montreal.

**BELT DRESSING.**
Sadler & Haworth, Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt.

**BLOWERS.**
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
Sheldons, Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

**BLOW PIPING.**
Sheldons, Ltd., Galt, Ont.

**BOILERS.**
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

**BORING MACHINES.**
Canada Agency Montreal.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
J. M. Nash, Milwaukee, Wis.
Valley City Machine Works, Grand Rapids, Mich.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

**BOX MAKERS' MACHINERY.**
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Baxter D. Whitney & Son, Winchendon, Mass.
C. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

**CABINET PLANERS.**
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Valley City Machine Works, Grand Rapids, Mich.
Baxter D. Whitney & Son, Winchendon, Mass.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

**CARS (transfer).**
Sheldons, Ltd., Galt, Ont.

**CARVING MACHINES.**
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Valley City Machien Works, Grand Rapids, Mich.

**CHISELS.**
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.

**CIRCULAR SAW MILLS.**
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

**CHAINS (Silent).**
Jones & Glassco, Montreal.

**CLAMPS (Chain, Carpenter, Cabinet, Pattern Makers, Bench, Mitre, Piling, Mounted and Rotary Wheel).**
Black Bros. Machinery Co., Mindota, Ill.
J. A. Fay & Egan Co., Cincinnati, O.

**CLAMPS (Saw).**
Shurly Dietrich Co., Ltd., Galt, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

**CLUTCHES.**
J. A. Fay & Egan Co., Cincinnati, O.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

**COLUMN CLAMPS.**
Black Bros. Machinery Co., Mendota, Ill.

**COLUMN MACHINERY.**
J. A. Fay & Egan Co., Cincinnati, O.
C. Mattison Machine Works, Beloit, Wis.

**CORE BOX MACHINES.**
J. A. Fay & Egan Co., Cincinnati, O.
E. & B. Holmes Machinery Co., Buffalo, N.Y.

**CUT-OFF SAWS.**
Shurly Dietrich Co., Ltd., Galt, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
Simonds Canada Saw Co., Montreal.
R. H. Smith C., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

**CUTTER HEADS.**
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Samuel J. Shimer & Sons, Mitton, Pa.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

**DADO HEADS.**
C. Mattison Machine Works, Beloit, Wis.

**DISK GRINDERS.**
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.

**DOGS (Saw Mill).**
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.

**DOVETAILING MACHINES.**
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.

**DOWEL MACHINES.**
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Valley City Machine Works, Grand Rapids, Mich.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

**DRILLS (Automatic Hand).**
North Bros. Mfg. Co., Philadelphia, Pa.

**DRILLS (Reciprocating).**
North Bros. Mfg. Co., Philadelphia, Pa.

**DRILLS (Breast).**
North Bros. Mfg. Co., Philadelphia, Pa.

**DRYING MACHINERY.**
Canada Machinery Agency, Montreal.
Sheldons, Ltd., Galt, Ont.

**DRY KILNS.**
Canada Machinery Agency, Montreal.
Sheldons, Ltd., Galt, Ont.

**DUST COLLECTORS.**
Canada Machinery Agency, Montreal.
Sheldons, Ltd., Galt, Ont.

**DUST SEPARATORS.**
Canada Machinery Agency, Montreal.
Sheldons, Ltd., Galt, Ont.

**DYNAMOS.**
Canada Machinery Agency, Montreal.

**EDGERS (Gang).**
Berlin Machinery Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
Simonds Canada Saw Co., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Fisher, Sander Co., Berlin, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

**EDGERS (Single Saw).**
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
Simonds Canada Saw Co., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

**END MATCHING MACHINE.**
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.

Mussens, Ltd., Montreal.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

ENGINES (Steam).
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

EXHAUST FANS.
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
Sheldons, Ltd., Galt, Ont.

FLOORING MACHINES.
Berlin Machine Works, Ltd., Hamilton.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler.
Mussens, Ltd., Montreal.
Samuel J. Shimer & Sons, Milton, Pa.
Baxter D. Whitney & Son, Winchendon, Mass.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

FLINT.
Wausau Quartz Co., Wausau.

FLUTING HEADS.
J. A. Fay & Egan Co. ,Cincinatti, O.

GAINING MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinatti, O.
C. Mattison Machine Works, Beliot, Wis.
Mussens, Ltd., Montreal.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie Co., Ltd., Toronto.

GAS ENGINES.
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
H. W. Petrie, Ltd., Toronto.

GAUGES (Saw).
Shurly Dietrich Co., Ltd., Galt, Ont.
Simonds Canada Saw Co., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

GEAR HOBBING MACHINE.
Reynolds Machine Co., Moline, Ill.

GLUE CLAMPS.
Black Bros. Machinery Co., Mendota, Ill.
H. W. Petrie, Ltd., Toronto.

GLUE HEATERS.
J. A. Fay & Egan Co., Cincinnati, O.

GLUE SPREADERS.
J. A. Fay & Egan Co., Cincinnati, O.

GRINDERS (Cutter).
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Falls Machine Co., Sheboygan Falls, Wis.

GRINDERS (Knife, etc.).
E. C. Atkins & Co., Hamilton, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
T. A. J. Burton Saw Co., Ltd., Vancouver, B.C.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

GRINDERS (Tool).
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Valley City Machine Works, Grand Rapids, Mich.

GROOVING HEADS.
E. C. Atkins & Co., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
C. Mattison Machine Works, Beloit, Wis.
Samuel J. Shimer & Sons, Milton, Pa.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

HAND PROTECTORS.
J. A. Fay & Egan Co., Cincinnati, O.
Jones Safety Device Co., Hamilton, Ont.

HAND SCREWS.
Black Bros. Machinery Co., Mendota, Ill.
J. A. Fay & Egan Co., Cincinnati, O.

HEATING APPARATUS.
Sheldons, Ltd., Galt, Ont.

HANDLE AND SPOKE MACHINERY.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
J. M. Nash, Milwaukee, Wis.
Ober Mfg. Co., Cragrin Falls, O.
Baxter D. Whitney & Son, Winchendon, Mass.

HUB MACHINERY.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.

INJECTORS.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

JOINTERS.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

KNIVES (Planers and Others).
Shurly Dietrich Co., Ltd., Galt, Ont.
E. C. Atkins & Co., Hamilton.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.
Samuel J. Shimer & Sons, Milton, Pa.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

LACE LEATHER.
Sadler & Haworth, Montreal.

LAST MACHINERY.
Canada Machinery Agency, Montreal.

LATHES (Pattern Makers').
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Valley City Machine Works, Grand Rapids Mich.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

LATHES (Turning).
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Haspeler, Ont.
C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Plessisville Foundry, Plessisville, Que.
Valley City Machine Works, Grand Rapids, Mich.
Baxter D. Whitney & Son, Winchendon, Mass.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

LOOSE PULLEYS.
J. A. Fay & Egan Co., Cincinatti, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

LUBRICANTS AND GREASES.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

MITRE MACHINES.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

MITRE SAWS.
Shurly Dietrich Co., Ltd., Galt, Ont.
E. C. Atkins & Co., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Simonds Canada Saw Co., Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo N.Y.
H. W. Petrie, Ltd., Toronto.

MITRE CLAMPS.
Black Bros. Machinery Co., Mendota, Ill.
H. W. Petrie, Ltd., Toronto.

MORTISING MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
Black Bros. Machinery Co., Mendota, Ill.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinatti, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Jones & Glass Co., Montreal.
Mussens, Ltd., Montreal.
Plessisville Foundry Co., Plessisville, Que.
Valley City Machine Works, Grand Rapids, Mich.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

MOTORS.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.

MULTIPLE BOXING MACHINES.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
J. M. Nash, Milwaukee, Wis.

PATTERN SHOP MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Baxter D. Whitney & Son, Winchendon, Mass.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

PICTURE FRAME MACHINERY.
Black Bros. Machinery Co., Mendota, Ill.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.

PLANES.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.

PLANERS.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Baxter D. Whitney & Son, Winchendon, Mass.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

PLANING MILL MACHINERY.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Macihnery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Samuel J. Shimer & Sons, Milton, Pa.
Baxter D. Whitney & Son, Winchendon, Mass.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
Black Bros. Machinery Co., Mendota, Ill.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie Co., Ltd., Toronto.

PULLEYS.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinatti, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

QUARTZ.
Wausau Quartz Co., Wausau.

RESAWS.
Shurly Dietrich Co., Ltd., Galt, Ont.
E. C. Atkins & Co., Hamilton, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency Montreal.
Simonds Canada Saw Co., Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinatti, O.

Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

RIM AND FELLOE MACHINERY.
J. A. Fay & Egan Co., Cincinnati, O.

RIP SAWING MACHINES.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

ROLLER BEARINGS.
Mussens, Ltd., Montreal.

SAFETY GUARDS (For Band Saw Machines, Jointers, Rip Sawing Machines, Shapers, Swing Saws, etc.).
The Jones Safety Device Co., Ltd., Hamilton, Ont.

SANDERS.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
J. M. Nash, Milwaukee, Wis.
Ober Mfg. Co., Chagrin Falls, O.
Plessisville Foundry, Plessisville, Que.
Fisher Sander Co., Berlin, Ont.
Black Bros. Machinery Co., Mendota, Ill.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

SAND.
Wausau Quartz Co., Wausau.

SANDPAPER.
Black Bros. Machinery Co., Mendota, Ill.

SANDERS (Moulding, Belt and Panel).
Black Bros. Machinery Co., Mendota, Ill.
H. W. Petrie, Ltd., Toronto.

SASH, DOOR AND BLIND MACHINERY.
Berlin Machine Works, Ltd., Hamilton.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Samuel J. Shimer & Sons, Milton, Pa.
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Black Bros. Machinery Co., Mendota, Ill.
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The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
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SCRAPING MACHINES.
Baxter D. Whitney & Son, Winchendon, Mass.

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Berlin Machine Works, Ltd., Hamilton, Ont.
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WORK BENCHES.
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# After the Whistle Blows

BELONGED TO THE SHOW.

"Can any of you tell me," the Sunday school teacher asked, "why Daniel, when he was cast into the den with the lions, was unharmed?"

"I can, please," piped the juvenile lead who always figures in this brand of anecdote.

"Well?"

" Cause, teacher, he b'longed to the show."

---

OVERHEARD ON THE STAIRS.

A Washington man inadvertently overheard some tender exchanges between a recently betrothed couple, who, it chanced, attended some social function at the national capitol to which the aforesaid Washingtonian was also asked.

It was on the stairs that the happy pair chose to talk the matter over, and it was from the recesses of an alcove, whither he had gone to get his coat, that the Washingtonian proved to be the accidental recipient of the couple's confidence.

"Just think, dear heart!" exclaimed the young woman. "You proposed to me but twenty-four hours ago!"

"Yes, sweetheart," came in thrilling tones from the fortunate man, "and it seems as though it were but yesterday!"

---

FOOLED AT THEIR OWN GAME.

Two hunters, returning from the Catskills, decided to try some New York City humor upon the agent of a little railroad station in the foothills.

"When does the 3.49 train get in?" asked one.

The old man regarded him seriously and at length. "Wall," said he, "she generally gets in just a leetle behind the engine."

Later they approached him respectfully. "About time that train is due, isn't it, uncle?"

"Yes," said the agent, "she's about due. Here comes the conductor's dog."

---

SOUP!

Just by way of changing the programme, two sailors, recently returned from a voyage, decided to have dinner together in a fashionable cafe. They scanned the menu carefully.

"Let's stow some o' this consommy," said the leader of the adventure to the waiter.

"What is consommmy?" asked the other sailor.

"It's a Dago word for soup," his experienced shipmate assured himm. A few minutes later the consomme arrived.

"Huh," sneered the ignorant one, "we been sailin' on soup all our lives an' didn't know it."

---

IN THE LAST RAIL.

The department store clerk was gallant and obliging. The lady shopper was petulant and not to be pleased. For twenty minutes he unshelved roll after roll of blankets without arousing her purchasing interest. At length she said: "I don't intend buying anything—I am only waiting for a friend."

"Wait a moment, madam," said the clerk, in his most Hymettan tones, "there is one more roll left on the shelf. Perhaps your friend is in that."

ON THE WATER WAGON.

A young man, a great lover of nature, went to the seashore for a holiday, and, approaching a typical fisherman, said:

"Have you ever seen the sun sinking in such a glare of glory that it swallows up the horizon with fire? Have you not seen the mist gliding down the hilltop like a sceptre? Have you never," he went on, immpassionedly, "seen the moon struggling to shake off the grip of the ragged, rugged storm-cloud?"

"Nope," responded the fisherman, "I'm on the waggon now."

SW-E-EP!

The Chimney Sweep—"Ere! Wot yer givin' us? Think I'm goin' ter work till I'm black in the face fer eighteeenpence?"

---

DANGEROUS BALANCING.

Cupid (balancing on head and shoulders of tightrope walker)—"You wouldn't 'ave caught me up 'ere, missus, 'ad I known as yer 'air was only stuck on!"

---

DOG OR MARRIAGE LICENSE.

The Stranger—"Are you quite sure that was a marriage license you gave me last month?"

The Official—"Of course! What's the matter?"

The Stranger—"Well, I've lived a dog's life ever since."

LOOKING FOR TROUBLE.

Owing to fog, a steamer stopped in the mouth of the river. An old lady inquired of the captain the cause of the delay.

"Can't see up the river," replied the officer.

"But, captain, I can see the stars overhead," she argued.

"Yes," said the captain gruffly, "but until the boilers bust we ain't a-goin' that way."

---

NO DANGER.

One night at a theatre some scenery took fire, and a very perceptible odor of burning alarmed the spectators. A panic seemed to be imminent, when an actor appeared on the stage.

"Ladies and gentlemen," he said, "compose yourselves. There is no danger."

The audience did not seem reassured.

"Ladies and gentlemen," continued the comedian, rising to the necessity of the occasion, "confound it all—do you think if there was any danger I'd be here?"

The panic collapsed.

---

Teacher: "What is your father's occupation?"

Little Boy: "I can't tell you."

Teacher: "But you must!"

Little Boy: "My father doesn't want me to tell."

Teacher: "I insist on your telling me. I have to know."

Little Boy (tearfully): "He's—he's the fat lady at the circus."

---

Master—How do you spell needle?

Boy—N-e-i-d-l-e.

Master—What's the "i" for?

Boy—To put the cotton through, of course.

# "Amphibia"

**Waterproof**

# Leather Belting

is made to do hard work in a wet place better than any other Belt. Let us prove it to you by sending a Belt on trial.

We always carry a full stock of all kinds of Leather Belting.

## Sadler & Haworth

**Montreal - Toronto**

The New Slow Speed

# Sheldon Exhaust Fan

**The Fan that is revolutionizing the Shaving Exhaust Business**

It will handle wet or dry, long or short shavings and sawdust, and will do this work with a guaranteed reduction in speed of from 25% to 40% less and with a power consumption of 20% to 35% less, than any other exhaust fan. The Casing is very similar to that formerly used, but the wheel is of an entirely different design.

Let us tell you more about it

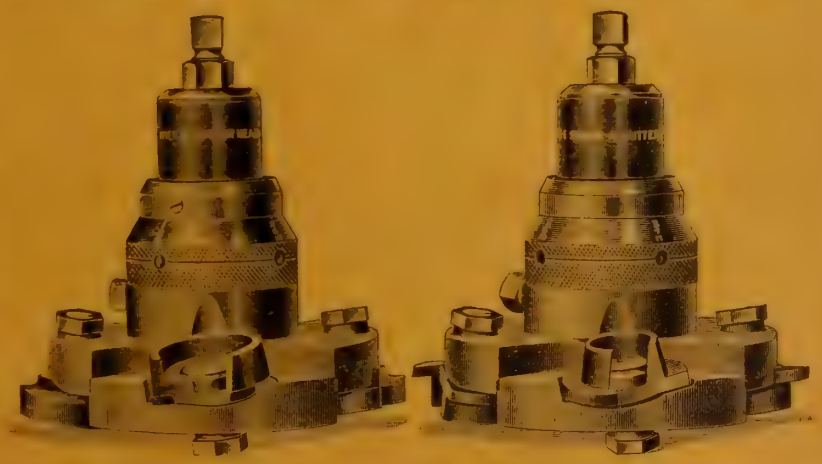
## SHELDONS LIMITED - Galt, Can.

# The Shimer Cutter Heads and Special Tools

## Cost Reduction

Business men everywhere are giving attention to reducing cost of manufacturing by installing labor-saving and time-saving tools.

The Shimer Cutter Heads remove many of the troubles and worries incident to the business of the machine woodworker and place in his hands the power to increase his productive capacity in the manufacture of flooring, ceiling, wainscoting, door and sash patterns, etc., besides saving much of the material that formerly reached the offal pile.



Examine our catalogue and see if there is not some tool you need to help in the work of cost reduction. If your work is special write us about it. Almost every week we adapt the Shimer Cutter Head to the making of Specialties, or design some new fixture to further its usefulness.

We make a number of Heads for special purposes. For any design of material you get out in quantity let us give our estimate on the Head to do the work. Our prices are uniformly low—our goods of best quality.

**See that you get the genuine.**—Look for the NAME and TRADE MARK **"The Shimer Cutter Head"** stamped on every Head we turn out. A dealer who would sell you an imitation means to deceive you—send them back and demand the genuine article with our guarantee for your protection.

**Branch of Milton, Pa.** **Samuel J. Shimer & Sons,** **Galt, Ontario, Can.**

# Whitney Gauge Lathe

Do you make duplicate turnings? That is, many turnings after a single pattern. If you do a Gauge Lathe is the machine you need, and a Whitney Gauge Lathe represents all that mechanical ingenuity can do in making such a machine perfect in operation and in giving it a big working capacity. You can make turnings altogether round or with portions left square. Moreover, the variety of patterns made on a Whitney Gauge Lathe is only limited by the number of patterns of knives you use.

The operation is entirely mechanical, as all guiding of the tools is done by the machine.

The Whitney Gauge Lathe being marked by distinctive features all its own, have sufficient to make them the most efficient machine for the rapid duplication of turnings. We want you to write for a full description.

## Baxter D. Whitney & Son

**Winchendon, Mass.**

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# CANADIAN WOODWORKER

Vol. 9 Toronto, March, 1911 No. 3

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**Shaper Guards**

**Protect the Operator and SAVE DAMAGE SUITS**

Endorsed and recommended by all Factory Inspectors.

Write for Prices and full Particulars, Free

**Fair Mfg. Co., Racine, Wis.**

BOX E.

**A Machine You Should Know About.**

Patent Fitting Tilting Saw

We want to tell you about this new machine of ours, because it's a good thing. We say it's the best on the market and we would like you to take us up and let us prove it.

**Drop Us a Card**

**THE SOUTHAMPTON IRON WORKS**

**Southampton, Ont.**

From

**Nova Scotia to British Columbia**

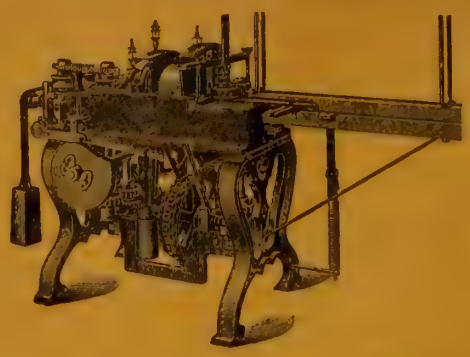
**Burton's** Saws are to be found in Mills, large and small.

We can tell you, or show you, good reasons, for this wide-spread sale.

Ask the Millman down street what he thinks of our saws, and if he is a user, he'll prove to be our best salesman.

Let us send you some facts about saws in general, and Burton's Saws in particular.

**THE A. J. BURTON SAW CO. Limited, VANCOUVER, B.C.**



## This is a Cut of the No. 10 Ober Lathe

for turning Fork, Hoe, Rake, Mop, Broom and Ice Hook Handles, Pike Poles, Tent Poles, Trolley Poles, Curtain Poles, Chair Bows, Dowels, Rods and Similar Work.

**Simple—Strong—Durable—Economic**

We also manufacture other Lathes for making Spokes, Handles and Variety Work; Sanders, Shapers, Boring and Chucking Machines, etc., etc.

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## Clamp Fixtures, Per Set, 50 Cents

Gentlemen :—We are pleased to state that the 25 dozen Patent Maleable Camp Fixtures which we bought of you a little over a year ago are giving excellent service. We are well satisfied with them and shall be pleased to remember you whenever we want anything additional in this line.

Yours truly, CURTIS SASH & DOOR CO.,
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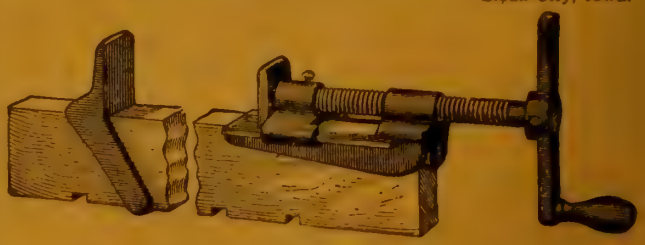

No. 1

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STEEL BAR CLAMPS

The bars of our STEEL CLAMPS are especially tempered and guaranteed indestructable. Screws and fitting quickest possible action and made to stand any service or abuse. Don't fail to test sample of this clamp before you buy elsewhere.

Over 26,000 of our Steel Rack Guaranteed Vices

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## Do you Manufacture

Broom, Hoe,
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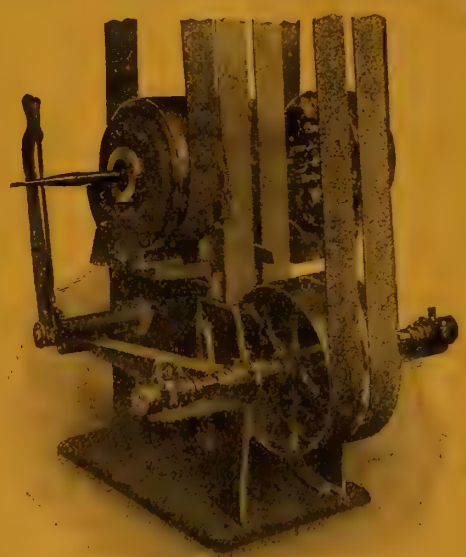

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## Automatic Double Belt Sander

To sand them on

I can tell you of ways to save money.

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Carborundum Knife Grinding Wheels have cut their way into favor in many of the most prominent wood working establishments in the country

They not only do twice the work of any other grinding wheels—but they do it better and cleaner. They stand up well—do not burn the work—do not draw the temper even from the finest steel. Require almost no attention and last much longer than other abrasive wheels.

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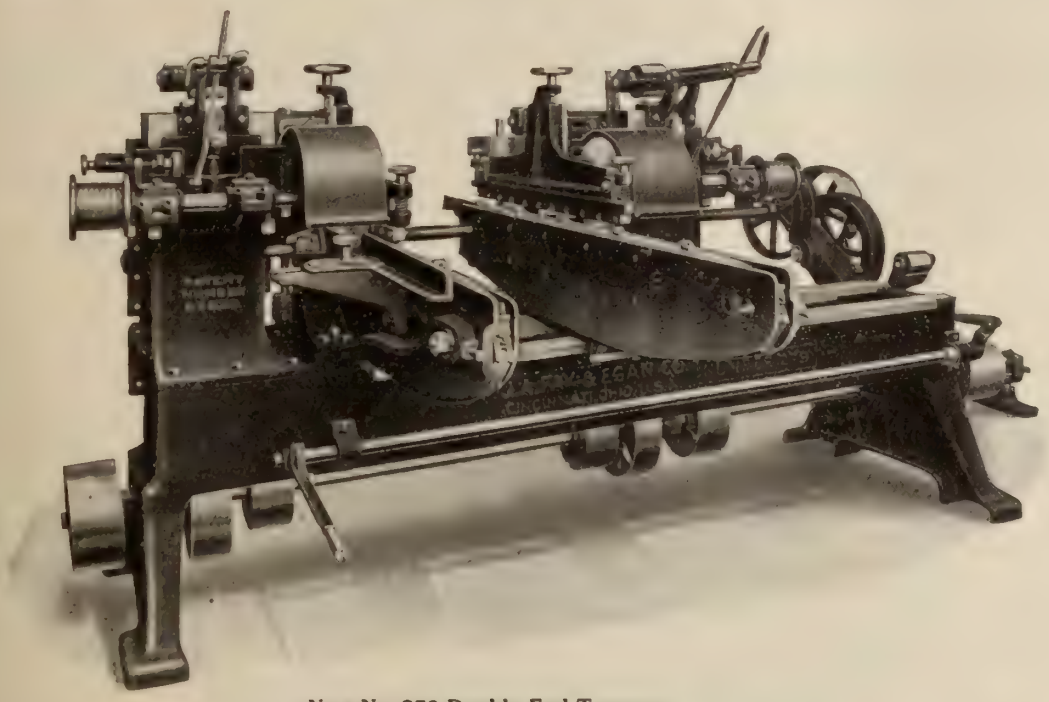

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# Reasons Why Our New Double End Tenoner is the Best.

1st. Its wide range—working from 4½″ to 60″, 84″ and 100″ long and 20″ or 33″ wide.

2nd. Stock carried on slides instead of chain.

3rd. Feed chain is so constructed as to eliminate slipping and excessive wear.

4th. Moving column is gibbed to front wall of bed—not across—preventing springing of bed.

5th. Moving column operated by rack and pinion insuring quick and accurate adjustment.

6th. One countershaft only and that in centre of base, out of way of operator.

7th. Pressure Bars close to heads and directly over line of stock.

8th. Accessible Tenon head belt binder on top of column.

9th. Micrometer cross-adjustment to cut-off saw.

10th. Very heavy cope construction.

11th. Gravity belt binder.

12th. Cross-adjustment to pressure bars.

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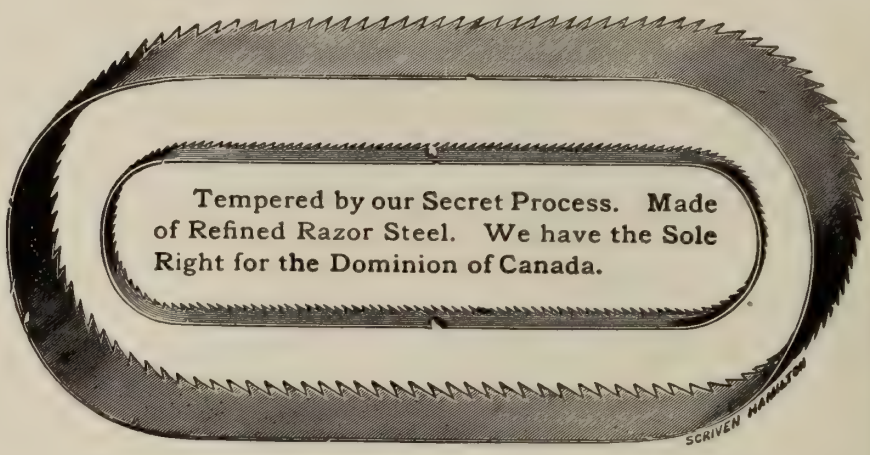
LARGEST SAW MANUFACTURERS UNDER THE BRITISH FLAG

We manufacture Circular Saws Gang Saws Mill Saws Band Saws Cross Cut Saws Buck Saws Saw Setts etc.



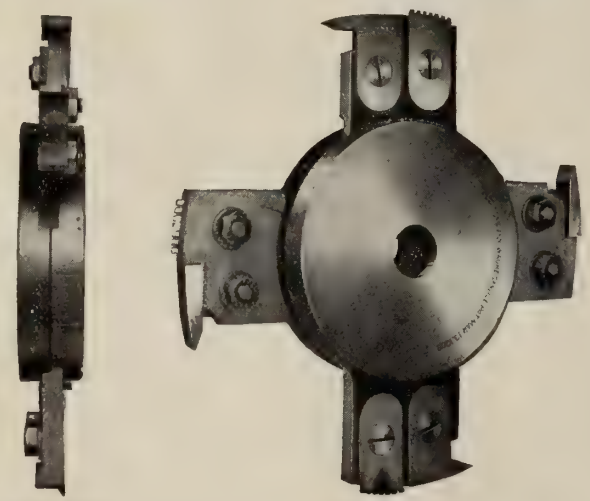

We manufacture high-grade **Band Saws** of all Widths and Lengths

These Saws are made of Refined Razor Steel, and Tempered by our Secret Process; for Fine Finish and Temper are not excelled.

**"Maple Leaf" Saws** are the best-tempered saws made

We are the only manufacturers in the world who export Saws in large quantities to the United States

## A Matter of Adjustment



Front View Side View

**THE Hall Adjustable Dado or Grooving Head** adjusts to the fineness of 1/64 of an inch and can be adjusted for any size groove within the scope of the Cutter in half a minute.

These adjustable features are peculier to the "Hall" and are entirely novel

There is no manipulation of bolts, screws, washers or nuts in making the adjustment, which means there is nothing to work loose.

Our Booklet C. 2 will prove interesting reading and will give you a full description of the Hall Cutter-head suited to your needs.

**The Pamphlet is free—just ask.**

**Write us for prices on other machinery**

**Hall Cutter-Head Company, Incorporated**

**Factory, Waukegan, Illinois 303 Trude Building, CHICAGO, U.S.A.**

**LIVE AGENT WANTED**

## Robinson Improved Saw Gage

**Made in Canada**—Saving Duty and U. S. Freights for Canadian Purchasers. Sent on 30 days Free Trial. If not entirely satisfactory, send it back at our expense. This Gage will save Time, Material and Mistakes, thus economizing from 50 cents to $1.00 on every thousand feet of lumber cut with it. Hundreds are in use saving their cost many times over each year. Rod and stops are threaded so stops cannot be jarred along by impact of the board, but at one point in the turn can be lifted off and dropped on rod again at any desired point. Cutter can hit any stop "like any key on a piano."

Patented in U. S. and in Canada.

Write for prices, describing kind of saw used — length wanted, and whether right or left-hand.

**J. J. Robinson,**

**Patentee**

**Bloomsburg, Col. Co., Pa., U.S.A.**

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## St. Catharines, Ontario

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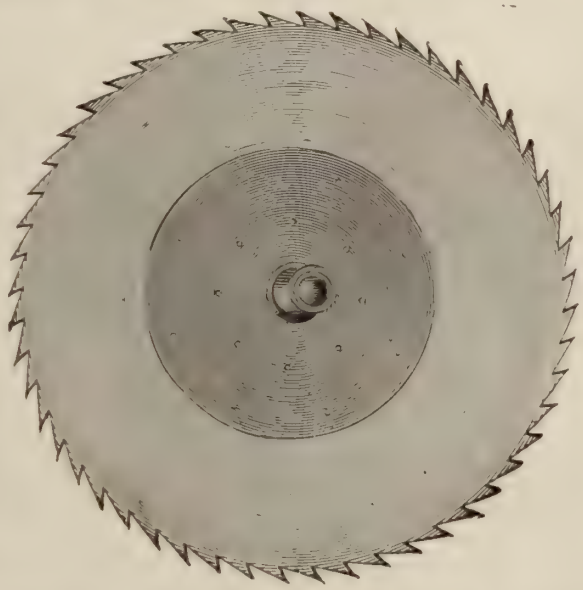
**We make Inserted Tooth Saws, Shingle Saws, Cross Cut Saws, Hand Saws, etc., etc.**



**We make every kind of Saw required in Saw Mills, Planing Mills, Furniture Factories, Piano Factories, Carriage Factories, etc., etc.**

We have been manufacturing for the Canadian trade since 1855, and have maintained the same high standard of excellence. Let us know your saw requirements.

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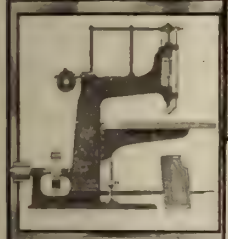
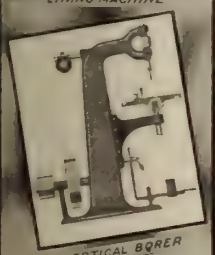
VALLEY CITY MACHINE WORKS GRAND RAPIDS MICH. U.S.A.


LINING MACHINE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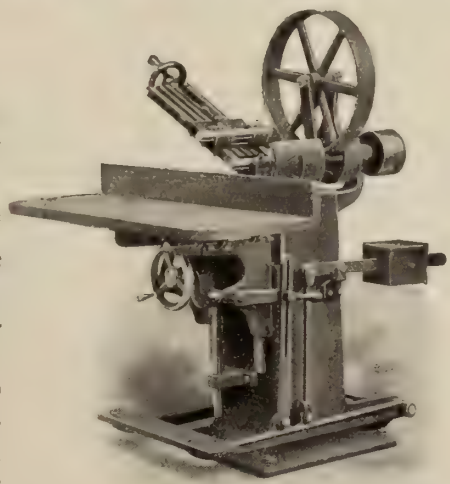
boring from 7/8", 1" or 1 1/4" to 18".

Best on the market. Can change machine from single to double spindle in a wink. Either



**No 2.**

boring from 7/8", 1" or 1 1/4" to 12".

weight or spring counterbalance. Extra attachment for light routing when desired

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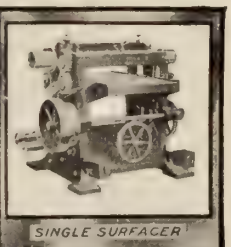
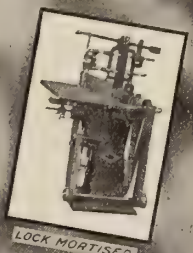
## Valley City Machine Works

**18 Campau St. - Grand Rapids, Mich., U. S. A.**


SINGLE SURFACER

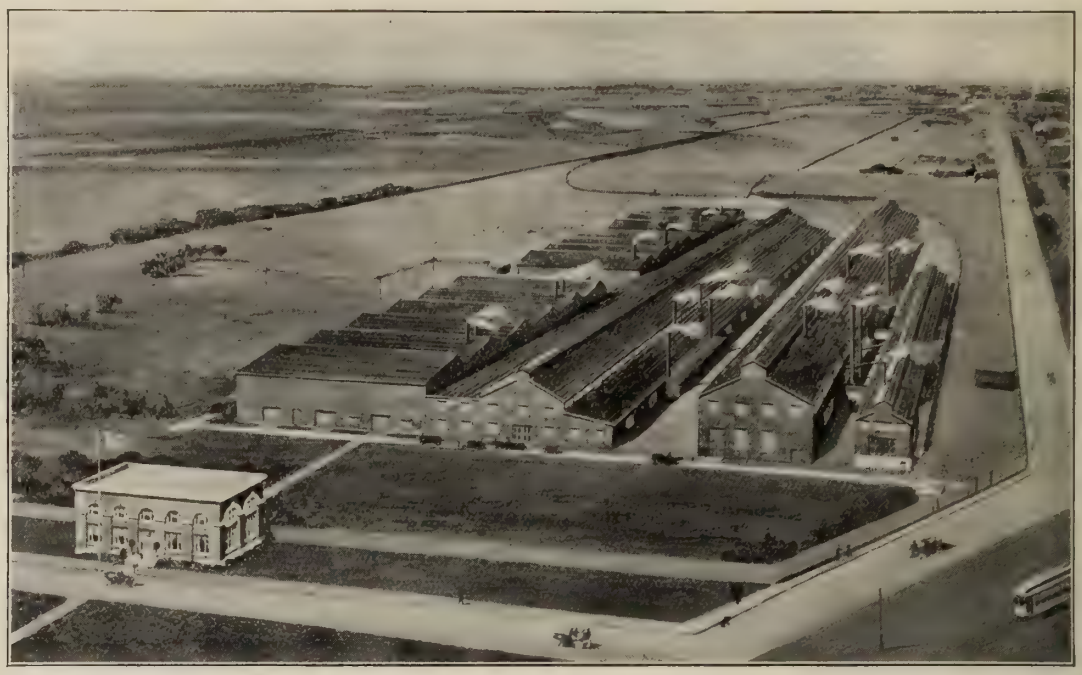
RADIAL BORER


LOCK MORTISER

WOOD LATHE

# New Simonds Steel Mill

**A Complete New Steel Mill for Simonds Saws has been built and is now in operation at Lockport, N.Y.**



**Simonds Saw orders for the spring of 1911 will not be delayed in the least because of any lack of steel. The new mill settles that question.**

**Simonds Saws made from Simonds Steel are now up to the highest known standard of material in the steel from which they are constructed. The Lockport mill is to make this special grade of saw steel almost exclusively, and it is only for use in the manufacture of Simonds Saws.**

"Go find a suitable location and build an entirely new Simonds Steel plant," was the startling suggestion offered by a director of the Simonds Manufacturing Company when the subject of "service" was being discussed in a meeting, one day last spring.

Simonds Saws were selling faster than they could be made and delivered satisfactorily. The trouble was with the amount of steel being made by the original mill. The three factories, Fitchburg, Mass., Chicago, Ill., and Montreal, Que., could make the goods all right, but they couldn't get enough of our own high grade crucible steel, which is the only kind that will be put in Simonds Saws.

The problem had to be met. The suggestion of the director proved the best solution. Plans were at once made for a new mill. Lockport, N.Y., was selected as the location. Work of construction began early in the summer. The first steel was rolled Monday, January 2nd, 1911.

Briefly, that is the story of one of the biggest tasks ever accomplished by a Saw manufacturer. A more detailed account would tell of the months of strenuous work, getting men and materials on the grounds at Lockport; inspecting and passing the materials purchased for construction; and the constant pushing of construction work. Today the buildings are up as planned, the machinery is installed, and everything is being rounded out in the most convenient shape.

The accompanying illustration gives a view of the outside of the Simonds Steel Mill. Fourteen acres of land are covered by the buildings and immediate yards; and in all there are eighty acres of land here belonging to the Simonds Company.

The special saw steel properties which Simonds Steel possesses is primarily the result of using, in the first place, the right mixture for Steel making. Our principal reason for embarking in the steel business eleven years ago was on account of our not being able to buy from existing mills a uniform steel with a guaranteed mixture made to our specifications. Simonds steel is made according to a secret formula that is not elsewhere duplicated. Nothing that bears the name of "Simonds" has ever been made from anything but the very best of materials and in a crucible furnace.

Uniformity — uniformly good—is our constant watchword. Careful chemical analysis is made on every heat turned out of the mill. The physical properties of the steel are also tested out. We know of no other steel mill in the United States that is so thorough as the Simonds Lockport mill in the testing of steel.

The machinery of the Lockport mill is thoroughly modern. All that is latest and most up-to-date in scientific crucible steel making is made use of here. New machinery and new methods enable us at once to double our former steel production. The mill is entirely electrically equipped. Electric current is brought on high voltage wires direct from generators at Niagara Falls.

When the difficulties of making Saw Steel are fully realized it will at once be seen why we do not go into the open market and buy any old steel for the making of Simonds Saws. Our satisfaction never stops short of a Saw that will satisfy the most exacting mill man. So, making our own Simonds Steel is a necessity to maintain the quality which has put and will keep Simonds Band, Circular, Cross-Cut and Hand Saws in the leading position which they now occupy.

The increase of our steel-making ability which the new Lockport mill brings to us is an excellent investment, the benefits of which will be enjoyed wherever Carpenters use Hand Saws or Mill and Lumber men use Mill Saws.

## SIMONDS CANADA SAW CO., LIMITED

**Montreal, Que.** **St. John, N.B.** **Vancouver, B.C.**

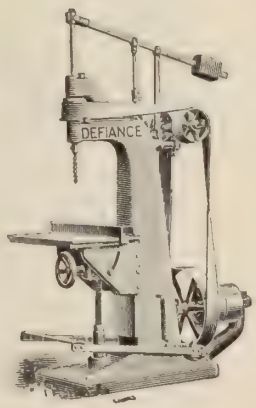
Our success is but a reflection of the success of our customers, that's why we make every machine live up to the guarantee placed upon it.

## "Defiance" Patent Wood-Working Machines

are, therefore, the trustworthy kind.

Everything necessary for the manufacture of hubs, spokes, rims, wheels of all kinds, automobile, carriage and wagon woodwork, handles of every description, spools and bobbins, chair and table legs, shafts, poles, neck-yokes and single trees, hoops, insulator pins, oval wood dishes, balusters and general woodwork.

*Consult us when in the market.*

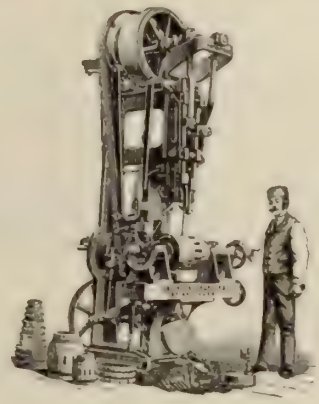



## The Defiance Machine Works

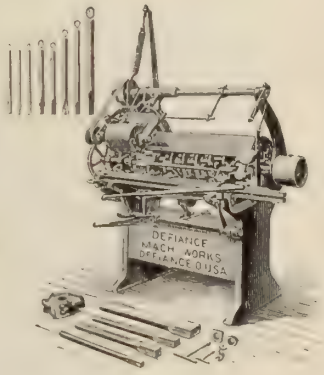
**Defiance, Ohio, U.S.A.**

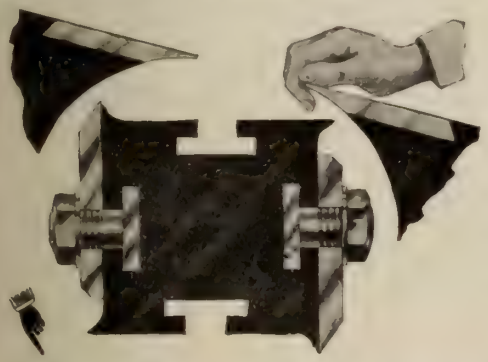
**European Office 71 Queen St., E.C., London, England**

**Write for Catalog.**



**Ask for Quotations.**

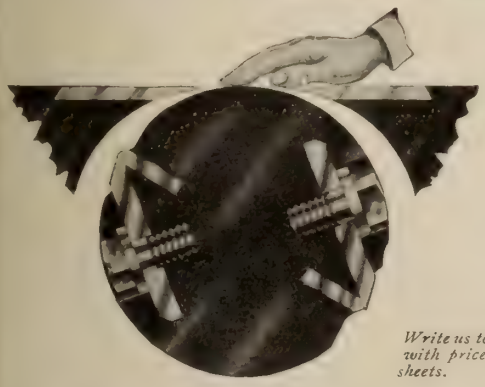


## The Old Way

of cutting off fingers on the hand Joiters.

**You ought to equip your Jointers with "The Porter" Patented Safety Cylinders**



## The New Way

prevents those terrible accidents

*Write us to-day for our catalo with prices and specification sheets.*

## C. O. Porter Machine Co. Grand Rapids Mich.

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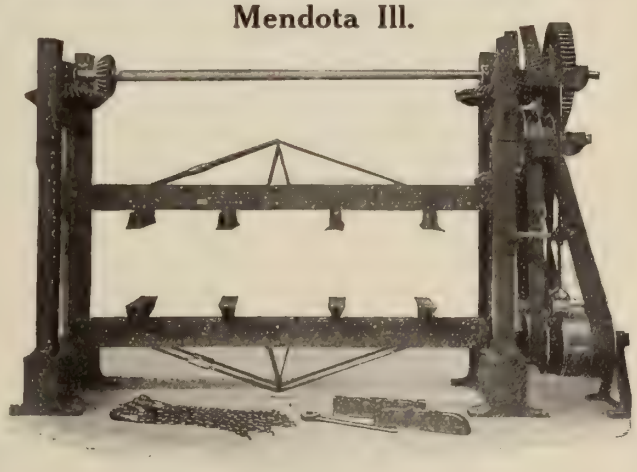


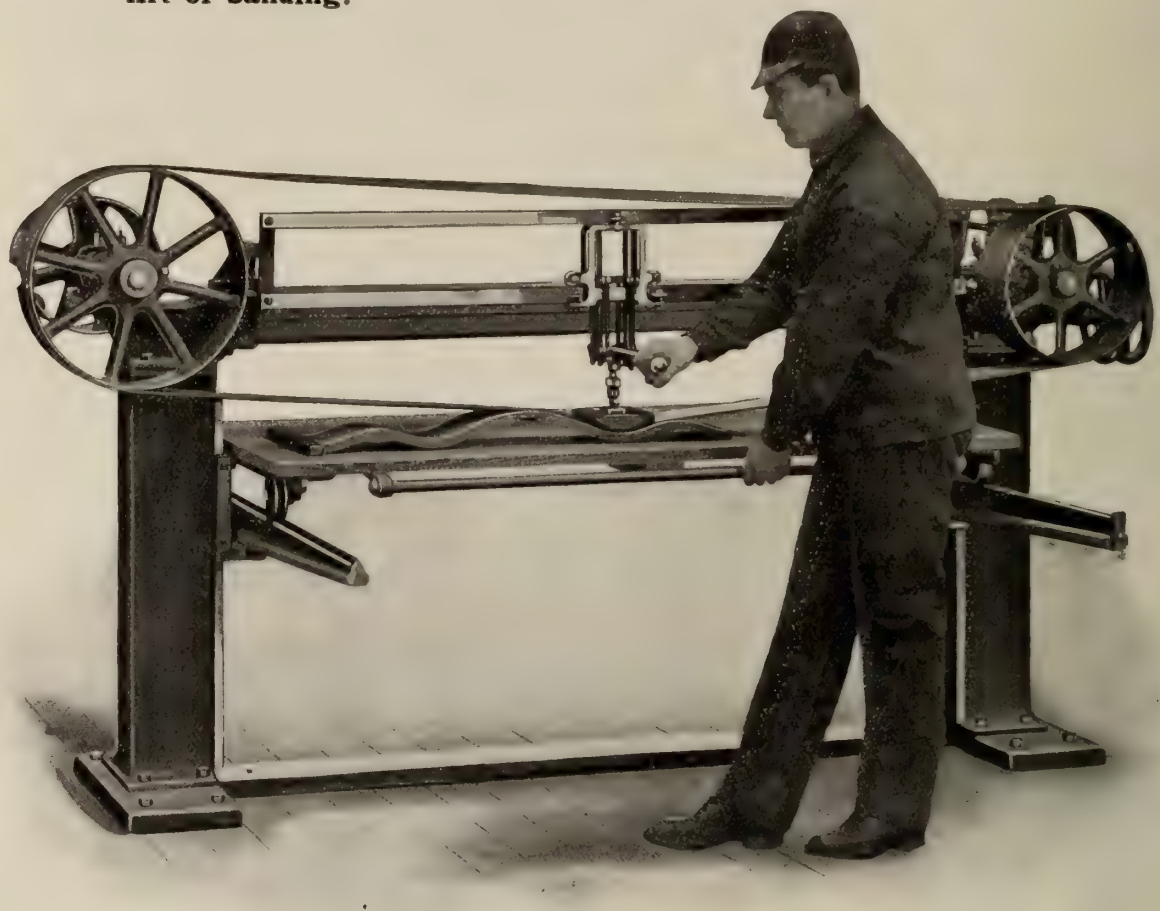
## A Veneer Press with a Reputation

We would like to give you particulars of this machine, because we can show you increased production and a better finished job. :: :: :: :: ::

**Better let us send you a folder about our Veneer Presses**

# Belt Sanders

Play an important part in Modern shop practice. The public demands **"smooth finish"** even in the cheaper lines of goods. What they demand they will get, if not from you then from your Competitor. You want the business and you can get it if you will only discard your old methods of "curry combing" your product and install our **Lucas Belt Sander.** This machine has revolutionized, simplified and perfected the **Art of Sanding.**



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## LUCAS-BELT SANDER

**Patented**

Stands for 100% Efficiency

In Wood Tools

By "Efficiency" we refer not only the quality of the work done but also to the quantity. What we claim is that the Lucas Belt Sander on **flat surfaces** or **irregular shaped forms** is capable of turning out more strictly high-class work than any other belt sander you can buy. **Let us prove it to you.**

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United States: E. J. MACINTYRE, 4057 Perry St., Chicago.

SUBSCRIPTION RATE.

Canada, United States, $1.00; Great Britain, Australia and other countries 4s 6d., per year; other countries, $1.50. Advertising rates on request.

**Vol. 9** **March, 1911** **No. 3**


A WISH

Let me live in my house by the side of the road,
Where the race of men go by,
They are good, they are bad, they are weak, they are strong,
Wise, foolish:—so am I.
Then why should I sit in the scorner's seat,
Or hurl the cynic's ban?
Let me live in my house by the side of the road,
And be a friend of man.

Sam Walter Foss.

## Where Machinery Halts

There is one place where the march of mechanical progress comes to a halt, and because of this fact it is making more or less trouble for the lumber and machine woodworking industry.

This place where machinery halts or balks, and mechanical manipulation fails, is in the taking of low-grade lumber and trimming out the defects. The more defects there are the more deliberation must be used, ordinarily, in manipulating it; more cross-cutting, more ripping, and more matching must be done, and more personal attention must be given to it. In fact, this is the work in which the personal equation shows up as a big factor. It is recognized as impossible to invent machinery that can see and select the clear parts of a board and cut out the defects.

On the other hand, with the great accumulation of low-grade lumber that has good stock in it, that can be secured by careful working, the more important it becomes to have mechanical assistance in manipulating this stock, so that it can be worked without adding a burdensome amount to the cost of manufacture.

The whole trouble with the situation comes from the fact that we are brought up short, brought to a halt, because of the impossibility of using automatic machinery in this work. We are given to following the idea that to reduce the cost of manufacturing we must add automatic machinery to do the work formerly done by hand.

What we need here is not automatic machinery, nor exactly a compromise, but a line of machinery developed on a new theory—that of assisting men instead of replacing them—machinery that is easy to operate, that will do the physical work of handling and is quick in manipulation, so that a man, assisted by such machinery, can accomplish more in the way of sorting and trimming out lumber and concentrate his efforts more on mental work than on physical exertion.

Tt put it another way, the need of the day is to bridge over this chasm at which automatic machinery halts, with machinery designed to relieve man of the need to exercise his physical strength, so as to make it easier, especially for the man cutting up stock for the factory, to exercise his mental faculties and use good judgment, and use it rapidly, for manipulating stock, cutting out defects and refining low-grade lumber so as to get the high-grade material.

## Something of a Jolt

With headquarters in the Monadnock building, Chicago, there is located a gentleman whose official title is "Commissioner." He has in charge the statistics and analysis of the affairs of the manufacturers of coffins, caskets, dining tables, parlor tables, etc., and is not afraid to get after his clients on any and all subjects which he thinks would be for the betterment of the various industries that he represents. If he really issued the card in conection with his business that he should, it would read:

M. WULPI,
Dealer in
BRASS TACK FACTS AND AIRY PERSIFLAGE,
CHICAGO.

Here is a specimen of one of his "jolts" to his clients:

Circular No. 31-Joint.

SOME MANUFACTURERS' ENTERPRISES VS. GEESE FARMS.

To Members, Gentlemen:

The glowing visions of profits held out by promoters of new casket and furniture plants reminds the writer of the famous goose farm you may have heard about. It was an enterprise that was figured as follows·

Stockholders necessary, three. One hundred dollars share of stock each.

Entire stock invested in purchase of geese at $1 per; making a total of 300 geese.

No salary to be paid to officers or directors.

No expenditures for promotion or good will.

Every cent to go into stock (geese).

Each goose to lay three eggs per week. Three hundred geese equals 46,800 eggs per year.

Three years equals 140,400 eggs, all to be incubated and hatched.

Allowing 40,400 bad eggs, result 100,000 live geese for

(*Continued on page* 25)

# Planing and Moulding

## Getting Out Door Stock by a System

J. J. Blitz.

Factories doing a medium to a large business in mis cellaneous sizes of stock doors, and required to furnish them on rather short notice, will find the following system of cutting out stock, including panels, to be of interest.

In this case, however, the door and window and panel stock is racked away in the cut sizes and taken from the racks and machined to meet each other as it comes in. Thus, the cutting department does not have to handle these individual orders except in exceptional instances for odd-shaped orders of some size, as for just a few doors the nearest larger stock is cut down.

### Routine Handling of the Stock.

The method of getting the stock to these racks to utilize it to the best advantage, and with the greatest ease, depends on the grade and the equipment at hand, but with the ordinary grades of shop lumber and with either common or self-feed rip and cross-cut saws, the following method leaves but little to be desired: The stock coming in the rough is surfaced on both sides to 1¾, 1⅜, 1⅛ inches as the case may be, and ripped in long lengths to the standard door and window widths, making use of jigs to determine the widths.

The following series of jigs is very simple and positive, insuring great speed and accuracy in changing widths. The rip saw gauge is first set accurately to rip just 9½ inches, this being the combined bottom rail and panel size for four-panel doors. The jigs are simply pieces of hardwood of varying widths with a projection on one end that lets it catch and hold on the gauge to rip the other width of door, panel and window stock without changing the original setting.

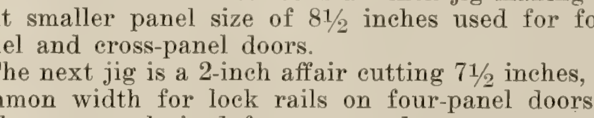



Fig. 1. A Rip-saw Gage for the economical Cutting of Door Stock.

By using them singly or in combination it is possible to rip many sizes with just a few jigs when they are properly designed.

The first one in the series is a 1-inch jig making the next smaller panel size of 8½ inches used for four-panel and cross-panel doors.

The next jig is a 2-inch affair cutting 7½ inches, the common width for lock rails on four-panel doors as well as a panel sized for narrow doors.

The third jig is one 4¼ inches wide and cuts the width down to the regular door width of 5¼ inches, for stiles and rails, and this jig is also left in when the supplementary jigs are used for all the smaller sizes. By using the 1 and 2-inch jigs, first mentioned in connection with this one, the ripping widths are respectively 4¼ and 3¼ inches, the first being used for lock rails and mullions on small four-panel dors.

By using a 2¾-inch jig in connection with the 4¼-inch one mentioned above, the ripping size is 2½ inches as used for window styles and rails. Then by using the 1-inch in connection with these the width is 1½ inches for bars, mullions, etc.

Using a jig 3¼ inches wide, in connection with the 4¼-inch one, makes a ripping width of 2 inches, used for check rails. For 1-inch bars the 1-inch jig is added to these, which will make the width.

In this way it is possible to rip all of the necessary widths with but five or six jigs, which will give all the regular widths of door and window stock. They will always remain constant. With a little practice they can be set quicker than a gauge, as they can be changed to a new width with no attention but to be sure to use the right one. Practically all tendency to error is eliminated, as the only setting requiring care is the first one, in which the rip-saw gauge is permanently set to 9½ inches.

### Trucking the Stock Widths.

While the stock is being ripped, all of the door stock widths go on one truck and all of the other sash widths go on another, the helper having one truck on each side of him. These trucks are then trundled to their respective cut-off saws where the sash stock is cut into stock lengths varying from 1 foot 8 inches to 4 feet 5 inches in length, on a gauge with automatic stops allowing an assortment of lengths to be cut together to advantage.

The door stock is cut on a jig consisting of a long hardwood slat notched as shown in the illustration to various lengths as follows: Rail lengths, 1 foot 8 inches, 2 feet 2 inches, 2 feet 4 inches; mullion lengths, 3 feet 5 inches, and 3 feet 7 inches; stile lengths, 6 feet 2 inches, 6 feet 6 inches, 6 feet 8 inches, 6 feet 10 inches, 7 feet 2 inches, and 7 feet 8 inches, and panel lengths, 1 foot 7¼ inches, 3 feet 4 inches, and 3 feet 6 inches. This jig is set so that the notches on it mark those distances as compared with the gauge, and is well clamped to the gauge to prevent it from slipping. This

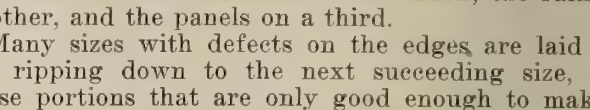



Fig 2. The Supplementary Gage for Accurately Sawing Door Stock.

can be used for all the sizes without changing or resetting and making it easy to cut stiles and rails to the best advantage. The helper takes the stock as it is cut and stacks the stiles on one truck, the rails on another, and the panels on a third.

Many sizes with defects on the edges are laid out for ripping down to the next succeeding size, and those portions that are only good enough to make a sash rail or stile are cut and laid out. Later on, when these are ripped they are ready to be placed in their respective racks.

By using these lengths a very large variety of both four and cross-panel doors can be made without getting out a special order for them. Then by using this stock work to fill in the time between the orders it will be found easier to keep the cutting department working to good advantage.

The panel stock is resawed and planed, then stacked away ready for use. The many advantages of this system are but typified when it is considered that the stock is drying and seasoning and can always be obtained without regard to the condition of the weather

outside, which is quite a consideration for those places where much of the lumber is piled out in the open where it often gets wet and covered with snow.

## Jointing of Lumber

One hundred and thirty-five years ago, only the average life of two sturdy men, is the period in which the woodworking industry made its first improvements by adopting a power-driven planer. From this date, one improvement has succeeded another, and if we look back we can see that the advancement made in machinery to produce lumber products has not been very rapid. During these years, however, the woodworking industry did not demand improved methods as we do to-day, and it is just in the last few years that modern methods have been put into shop practice that would meet the efficiency which this growing industry needs to meet competition, labor, and lumber conditions as we find them to-day.

The value of automatic machinery has done much for woodworkers and it is possible to-day to do the work much more economically and with as good or even better results than were accomplished formerly by hand labor.

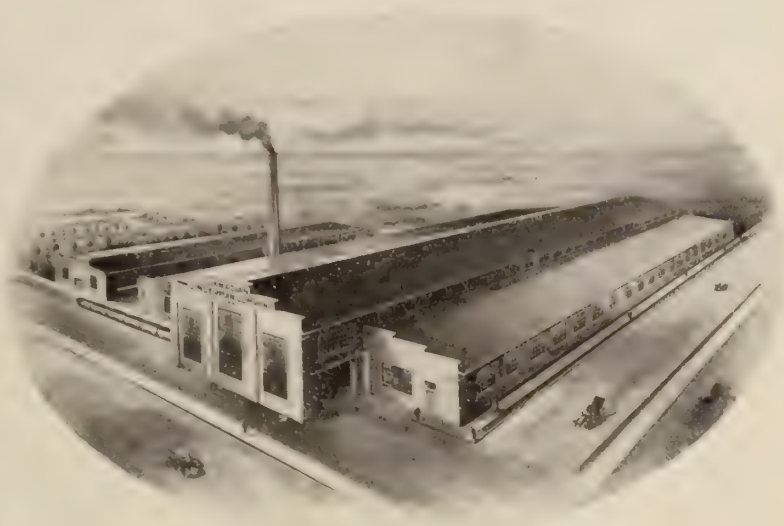
There can be no doubt that the most extraordinary achievement that has been made lately is the jointing and joining of lumber together automatically at one operation with a tapering wedge dovetail glue joint on the Linderman Automatic Dovetail Glue Jointer.

The growth of one's business is perhaps the best index to the value of its product. From the two large plants on this page you will get an idea of the growth

Head Office and Works for U. S., Muskegon, Mich.

and demand that has been made for this automatic lumber jointing machine. These two large factories, occupying nearly 80,000 square feet of floor space—the main plant at Muskegon, Mich., and the subsidiary company at Woodstock, Ontario, which recently began operations—is the progress made by the Linderman Machine Company from a small beginning made just ten years ago.

This revolution in the jointing of lumber together automatically was not made under favorable circumstances, as many furniture manufacturers said that it was an impossibility to ever joint lumber together without the use of clamps and pressure, but entering this tenth year of their business career, no one can doubt the ability of the Linderman Automatic Dove-



Canadian Headquarters and Factory, Woodstock, Ont.

tail Glue Jointer in making perfectly solid glue joints that will hold up under any condition with the finest hand polished varnish finish, as it is now in use in about fifty furniture factories making this class of work. Two hundred and fifty is the total number of machines in operation to-day; the rest are used in making packing boxes, doors, cores, woodenware, and cooperage stock, etc.

The tapering wedge dovetail glue joint is practically welding lumber together with glue, and experiments and the daily use in the factories using it, show that this joint is stronger than the natural wood itself. In making the tapering wedge dovetail joint, you have the same principle involved as jointing by hand and putting the lumber into clamps under pressure, but instead of multiple operation, it is reduced to one.

The tapering wedge dovetail joint slides together loose until it reaches two or three inches from the end. This allows the glue to say on the edge of the lumber and in the dovetail groove; the boards sliding together at 40 to 60 ffeet per minute draws the boards together quickly, giving the glue no chance to escape, consequently forcing it into the strongest glue joint that can be made. There is another important advantage, and that is the tapering wedge dovetails draw on the boards continually and when the glue has set, there can be no possible chance of it opening up.

Besides making the most perfect and strongest glue joint, the automatic dovetail glue jointer offers you an opportunities of joining furniture panels, packing boxes, cores for doors, cooperage stock, in fact, any kind of lumber product that is made from more than one piece of lumber at such a low cost that it is important to every woodworker who joints lumber.

The Linderman Machine Company, Woodstock, Ont., are always ready to demonstrate the value of their method, and furnish samples and literature on request.

# The Builder

## Geometrical Problems of Use to Planing Mill Men and Builders

We give here some very useful and interesting geometrical problems for the benefit of our readers who come in contact daily with such work. These are taken from "Dustman's Book of Plans and Building Construction," a very useful book, of which V. M. Dustman, licensed architect, is the author.

To Bisect a Straight Line—Fig. 1 shows a method of bisecting a straight line as A-B by using the dividers. Seth your dividers with a little more than half the distance from A to B; with A as a centre describe arc as at C and D, with the same radius and B as a centre describe another arc intersecting at C and D; draw a line across the line A-B as shown by the dotted line from C to D, and where the lines intersect will be the centre of the line A.B.

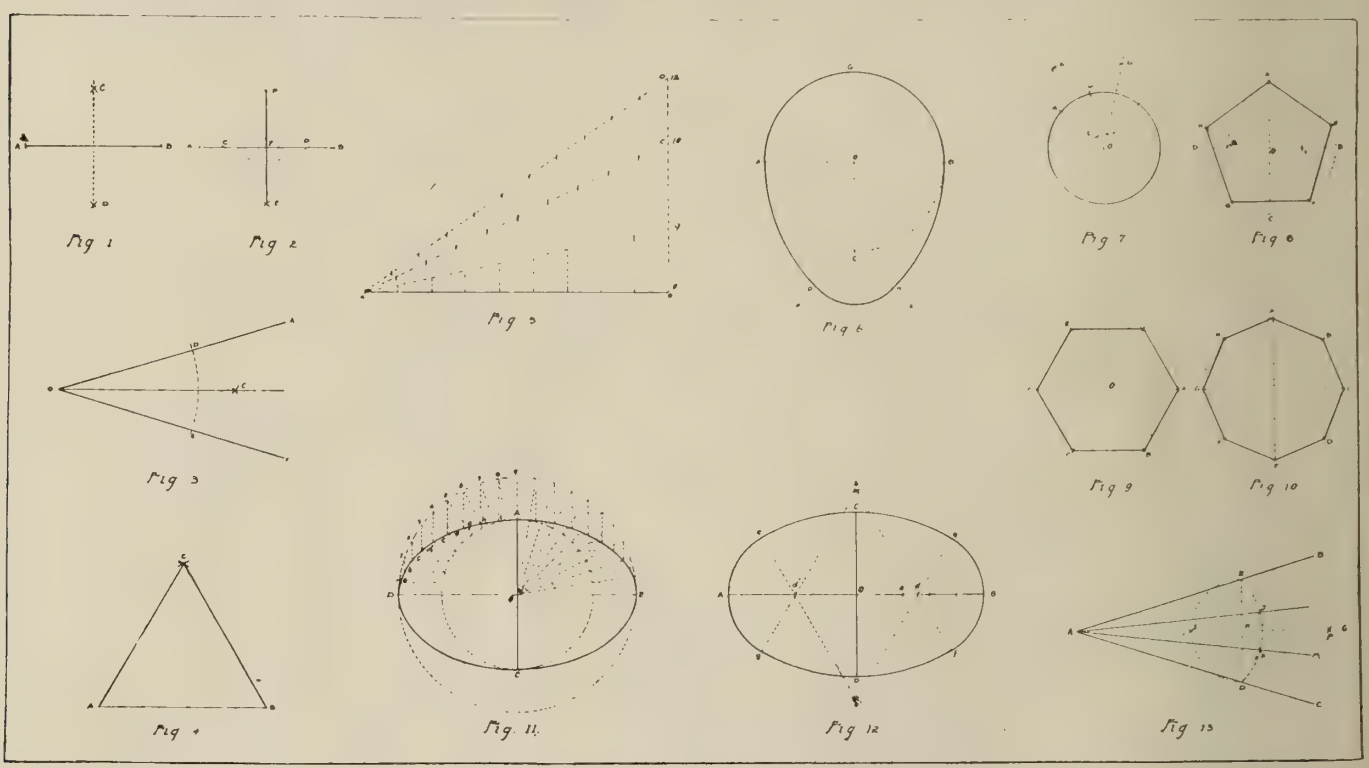



Fig. 2.—To Draw a Perpendicular to a Line from a Point Without.—To draw a perpendicular to the line A-B from the point P, take P as centres and a radius more than the distance from P to the line A-B, describe the arc C-D until it intersects the line A-B. With C and D as centres and a radius more than D-C, describe arcs as at E, draw a line from E to P intersecting the line A-B at F, the line P-F will then be perpendicular to the line A-B.

Fig. 3.—To Bisect any Given Angle.—Take the angle A-O-B. With O as a centre and any convenient radius, describe an arc as at D-E. With D-E as centres and a radius more than half the distance from D to E, describe arcs as at C, draw a line through O and C and you have the centre between A. and B.

Fig. 4—An Equilateral Triangle.—The line A-B being given, how to draw the triangle. With A and B as centres, and a radius from A to B, describe arcs intersecting each other as at C, draw line A to C and B to C, which will give the required triangle.

Fig. 5—To Divide any Line into any number of Equal Parts.—Suppose the line A-B were 8 inches long and you wanted to divide it into 9 equal parts; first draw a rule and hold the end of it even at A and slide the other end along the line B-D until the figure 9 is even with the line B-D; point off the inch marks along your rule and draw lines perpendicular from the line A-B to each of these points, and you have the line A-B divided into 9 equal parts. To divide it into 10 or 12 equal parts follow the same directions as described for 9 equal parts.

Fig. 6.—To Draw an Egg-shaped Oval.—Draw a circle as A-G-B-C, draw the diameter A-B and from the centre at O draw a perpendicular line until it intersects the circle as at C. Draw a straight line from B through C and extend it, say, one-half the distance B-C beyond C, draw another line from A through C the same way. Take B as a centre and B-A as a radius and describe the arc from A to D; with A as a centre and the same radius describe the arc from B to H; with C as a centre and a radius of C-H connect D and H, giving you the required shape.

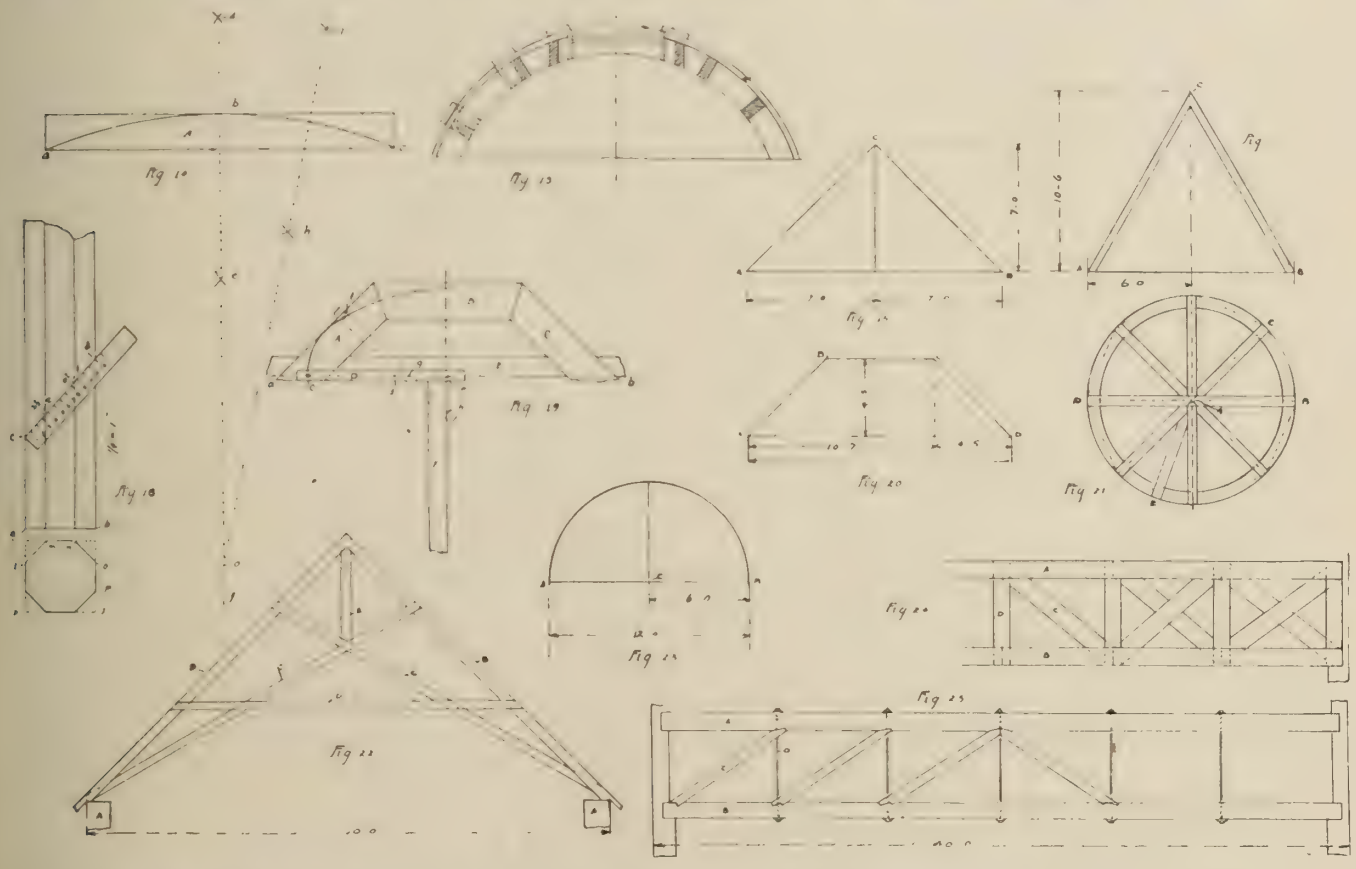
Fig. 7.—To Pass a Circumference through any Three Points not in the same Straight Line.—Let A, B and C be the given points. With A and B as centres and any convenient radius, describe arcs intersecting each other as at I-K; with B and C as centres and the same radius describe arcs as at D and E. Through I-K and through D and E draw lines intersecting at O. With O as a centre and O-A as a radius describe a circle, and it will pass through A, B and C.

Fig. 8.—To Inscribe a regular Pentagon in a given Circle.—Draw the circle A-B-C-D of any convenient

size, draw the two diameters A-C and B-D at right angles to each other. Bisect one of the radii as O-B at I. With I as a centre and I-A as a radius, describe the arc A-J cutting D-O at J. With A as a centre and A-J as a radius, describe an arc from J until it intersects with the circle as at H. The chord A-H is then one side of the pentagon.

Fig. 9.—To Inscribe a Regular Hexagon in a given Circle.—With your dividers set at any convenient radius, describe a circle as at A-B-C-D-E-F; draw the diameter at D-A. With the dividers set the same as for making the circle and A and D as centres, describe arcs cutting the circle at B-F and C-E. Join these points by straight lines and they will form the sides of the hexagon.

Fig. 10.—To Inscribe a Regular Octagon in a given Circle.—With your dividers set at any convenient radius, describe a circle at as A-B-C-D-E-F-G-H; draw the two diameters at right angles to each other. Bisect



one of the four equal arcs as A-C at B. Draw a line from B through the centre to F. Bisect A-G as at H and draw a line from H through the centre until it intersects with the circle at D. Now draw straight lines from A to B, B to C, etc., which will form the required octagon.

Fig. 11.—To draw an Ellipse, the Diameters being Given.—D-B represents the long diameter and A-C the short diameter. The diameters must intersect at right angles to each other in the centre O, so that the distance from O to B is the same as from O to D and from O to A the same as from O to C. With O as a centre and O-C as a radius, describe the smaller circle. With the same centre and O-D as a radius, describe the larger circle. Divide the outer circle into any number of equal parts as shown from B to 9, then draw lines from these points to the centre O. These lines will divide the inner circle into the same number of parts through the points of division on the larger circle. Draw vertical lines and on the smaller circle draw horizontal lines. The points of intersection where these lines meet will be points on the ellipse, as A, B, C, D, E, F, etc. Tracing a curve through these points will give you a true ellipse.

Fig. 12.—Another Method of Drawing an Ellipse.—This is drawn by circular arcs and is not a true ellipse, but is very convenient to draw. Draw the diameters the same as specified in fig. 11. On the axis A-B set off A the same distance from B as the shorter diameter C-D and divide a-B into three equal parts. With O as a centre and a radius equal to two of these parts, describe arcs cutting the line A-B at d-d'. With d-d' as a radius and d-d' as centres, describe arcs at b'-b. With the intersections of these arcs at b'-b as centres and a radius of b'-D, describe the arcs c-C-e and g-D-f. The points c-e and g-f can be found by drawing lines from the arcs at b'-b through d'-d until they intersect with the arc c-e and g-f. With A and B as centres and a radius of A-c, describe arcs cutting A-B at d'-d; with the same radius and d'-d as centres, describe the arcs connecting the two longer arcs.

Fig. 13.—To Trisect any Angle.—Draw any angle as A-B-C. Bisect it as described in fig. 3 and shown by the dotted line A-G. With A as a centre and any convenient radius, as A-E, cut arcs on the line A-B and A-C at E and D. Connect E and D by a straight line. With H, the intersection of A-G and E-D, as a centre and H-D as a radius, describe the arc cutting the line A-G at I. With I as a centre and I-E as a radius, describe the arc from E to D. With D as a centre and I-E as a radius, describe the arc from E to D, which will make a quarter circle. With D as a centre and the same radius, describe an arc as at J. With the same radius and E as a centre, describe an arc at K. Through intersections of arc draw lines to A and angle will be trisected.

Fig. 14—The Height and Width of a Segment being given, to find the Radius of the Arc.—Bisect the length a-c as described in fig. 1, which will give you

the line d-e. Bisect b-c as at g-h. Prolong the lines g-h and d-e until they intersect as at O; with O as a centre and O-b as a radius, describe the arc a-b-c, which will be the required segment.

Fig. 15.—How to set Studs in a Circle.—When a straight sash window is used as shown in the centre of the circle, the studs must be set parallel to the centre line. When circle sash are used then the jambs of the frame will point towards the centre of the circle and the studs will be set as shown on either side of the centre window.

Fig. 16.—How to Figure the Area of a Gable.—The gable shown is 14 feet wide with a half pitch roof. Half the width of the building being 7 feet, and the height or rise 7 feet, multiply 7 by 7, or half the width of the building by the height of the rise and we have the number of square feet in the gable. If there are two gables of the same size, multiply the width of one gable by the rise or height in the centre, and you will have the area of both gables.

Fig. 17.—The Height and Width of a Circle Tower.—This shows an elevation of fig. 20. By having the height and width given, the cut for the rafters can very easily be found. Half the width is 6 feet, and the height is 10 feet 6 inches. Taking 6 inches and 10½ inches on the square will make the cut; the 6-inch side for the bottom and the 10½ inches, or plumb cut, or the top. Fig. 21 shows how the rafters can be jointed at the top. The rafters D-B will be full length and the rest of them will be cut shorter, the thickness of the rafters.

Fig. 18.—How to cut an Octagon out of a Square Piece of Timber.—Take any width of timber from 12 inches down and this process will give you a true octagon at h-l-k-j. We have an 8-inch x 8-inch timber, a-b being the width. Take your rule and make one corner of it even with the outer edge of the timber as at C and adjust it until the 12-inch mark is even with the other edge of the timber; now draw off at 3½-inch and 8½-inch mark as at e-f. Draw lines parallel with the sides of the timber by using a rule or other gauge through e and f, which will give you the corners as at m-n. Make gauge lines on all four sides of the timbers the same distance in from the edge of the timber and you have the required octogan as J-K-L-M-N-O-P. If the timber is more than 12 inches square, take 7, 17 and 24 inches on the rule.

Fig. 19.—A simple way of Making a Pattern for an Ellipse.—Take a fencing board a little longer than the width of the opening as at E, and nail it to the floor just enough to hold it in place. Now nail another one as at F, perpendicular to the one at E; this can be done by the use of the steel square. Take the bottom edge of the board E for the bottom of the spring of the arch, and the right hand side of the board F for the centre of the opening. Take a strip of wood, say 2 inches wide, and a little more than half the width of the opening, as shown at D. Make a mark at c and e one-half of the width of the opening apart, then measure in from c the height that the opening of the ellipse is to be as at d. Drive a nail through the strip at d and e and bore a small hole large enough for a lead pencil at c. Place the strip with the nails in as shown, so that e is at the intersection of the two boards and the nail d rests against the under side of the board E; insert a pencil at c. Hold the strip with one hand at d and the other at e, pull the point e along the edge of the board F and keep the point d close to the edge of E until half of the ellipse is made. At g, h and f is shown the position of the strip after it is pulled down part way. Place boards as shown at A, B and C, so that the line of the ellipse will keep on the boards. By cutting along these lines you will have the required ellipse.

Fig. 20.—To Find the Area of an Octagon Bay Window.—The distance from A to D is 15 feet and the projection is 4 feet 5 inches. Drawing a line perpendicular to the line A-D at the point C, the point C is 4 feet 5 inches from D, leaving a distance of 10 feet 7 inches from the intersection of the line C on the line A-D. Multiply 10 feet 7inches by 4 feet 5 inches, the distance that the bay projects, and you will have the area of the bay A-B-C-D.

Fig. 22.—Framing a Truss Roof by Trussing each Pair of Rafters.—A-A shows the supports that the rafters rest on, B-B the common rafters, and C and F the brace rafters, which should be as heavy as the main rafters, and D the collar beam which is fastened to the brace rafters and also the main rafters. E shows a vertical brace from the centre of the rafters to the intersection of the brace rafters. A truss built in this way by using 2-inch x 6-inch timbers and half pitch will be strong enough for a 40-foot span, spacing the rafters 24-inch centres. For a pitch roof less than one-half, the rafters should be 2-inch x 8-inch.

Fig. 23.—To find the Area of a Half Circle.—The diameter from A to B is 12 feet and the radius is half that length, or 6 feet to C. Multiply the diameter by the radius, then multiply the quotient by .7854, which will give you the area—6 times 12 equals 72; 72 times. .7854 equals 56.54, or 56½ square feet. To find the distance around the half circle from A to B, multiply the diameter 12 by 1.57, which is 18.84 feet.

Fig. 24.—Shows a Form of a Low Wooden Truss when the Building is not more than 40 feet wide.—The truss should be about 4 or 5 feet high. The top and bottom girders A and B being made up of 4-2-inch x 10-inch timbers spiked together so as to break joints and not have two joints come at the same place; the braces C and D should be spiked between the 2-inch x 10-inch timbers forming the top and bottom girders, then filled in between the braces. The trusses should be about 16 feet apart, which will give enough strength to carry a roof. These timbers can be bolted together instead of being spiked.

Fig. 25.—Shows another Truss for a 40 feet or more Space.—The top and bottom timbers, A and B, are solid 10-inch x 10-inch timbers, with 4-inch x 8-inch braces at c. The braces c are notched into the top and bottom timbers, and iron 2-inch rods put in as shown with a heavy washer at the top and bottom. This truss should not be less than 5 feet high. When building trusses, they should have a crown of at least 1-inch in the centre before there is any weight put on them. When the trusses rest on brick walls they should have cast iron plates to rest on, the plates should be at least ¾-inch x 8-inch x 16-inch. The timbers A and B can be built up by spiking 5-2-inch x 10-inch timbers together. If the timbers are made of one solid timber, a 40-foot span will require at least one splice. How to make splices will be shown on another page in a later issue.

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**Downright Snobbery.**

At a dance recently a young gentleman somewhat inferior in social position to most of those present approached an alderman's daughter—"mightily superior" sort—and rather diffidently asked for the favor of a dance.

The girl looked him stonily in the face for a moment, then turned away with the remark:—

"I'm sorry; but I'm—well, rather particular as to whom I dance with."

"Ah, indeed!" was the quiet retort; "then we differ in that respect. I'm not a bit particular. That was why I asked you!"

Then he left her.

# The Saw Mill

## Superintendent or Foreman—WHICH ?

That manufacturers and employers generally are at the mercy of the men who are at the head of the various mechanical departments is quite evident to all who are familiar with the internal working of the factory end of a concern. For this reason it is advisable to engage for these positions only men of proved ability, pay them an adequate salary, give them a free hand and demand results from the start. To figure that it takes from one to three years before you can begin to make money is equivalent to admitting that you or your men, or both, do not understand your business, and must learn it before it can be put on a paying basis. Don't start in a business that you don't understand, and don't put men at the head of your mechanical departments who do not thoroughly understand the work. Of course, it is different if you have established the concern to provide positions for poor relations. But if it is a strictly business proposition, you can not afford to run along for a year or two without any profits, waiting for these men to learn their business and become competent to handle the mechanical end of your plant.

You have a foreman who has a free hand, but instead of producing results he is constantly making excuses. He is better at making excuses than he is at making furniture. For every mistake made he has a man to shoulder it on. Now, with these mistakes and excuses the judicious employer has nothing to do—except pay the bill. The foreman was placed in his position to see that these mistakes did not occur with sufficient regularity to prove disastrous to the business. Little mistakes are bound to occur under the most careful supervision, but the effect of these upon the final results will never be noticed, and if the foreman has not a sufficient grasp of the details of his department to keep these mistakes reduced to a minimum, then he has attempted something beyond his ability and cannot be replaced too soon. If you have given him a free hand, and more excuses he offers for his failure to produce results, the more reasons you have for replacing him with some one more competent.

In this connection there is another phase of factory management to which the writer has given very serious consideration, and of which he has long hesitated to write because of a fear of doing some one an injustice, and that is the practice of handing over to some departmental foreman the powers of a general superintendent. In finally deciding to write on this question, I have been influenced by another fear which seems to far outweigh the first, namely, the possibility of not doing justice to some one to whom justice is due. Throughout the country there are manufacturers who, from a sense of false economy, have engaged a superintendent, and in order to save a foreman's salary, placed him in charge of one of the departments. Now, if it is possible there are men holding such dual positions who are men of ability, and who at all times consider the interests of the firm with which they are employed of paramount importance, and these men have nothing to fear from anything I may say, although I think the whole system is wrong, and, with even the most conscientious man, is liable to lead to abuses. A man is something more than human if he can hold an even balance between departments for which he is held only indirectly responsible and the department over which he presides personally and is held directly responsible. But there are men occupying such dual positions who are merely parasites—parasites because they are extracting the very life blood of the institution and giving nothing in return. These men are barnacles on the wheels of progress and are more numerous than employers generally suspect.

In the first place, this system or practice is a vicious one, because it enables one man to use his semi-official position to protect himself, and all the other departments to cover up his mistakes; and, as a rule, he, and he only, has the ear of the management. He is able to do this successfully for a considerable length of time without being detected. He is usually a good talker, a smooth, oily-tongued gent, whose only qualification for the position is what he can say, and not what he can do. He takes some pains to inform the other foremen that the manager does not want to be bothered with the factory details, and, in any event, it is just as well not to let the office end know any more about the factory end than is absolutely necessary. If the department over which he personally presides is enabled to present a fairly good showing, somewhat better, perhaps, than the other departments, he will attribute it to his own superior ability, and the failure of the others will be charged to the incompetence of the foremen. If the factory as a whole presents a poor showing, he will say that he has no good men around him, and will point to this, that and the other thing to substantiate his claim and will suggest a change in the foremanship of every department except his own.

The writer has had ample opportunity of studying the working of this system of managing the factory end of a business, and has yet to learn that it possesses one single advantage over a system which holds every foreman responsible for his department only and renders him accountable to some head who is not more interested in the success of one department than another.

Among the many factories with which the writer is acquainted where this system of dual position is in operation, there is one that stands out prominently in the writer's mind as being typical of the working of the system in all the others. This plant had been in operation several years under the most careful office management, but had not paid on an average more than one per cent. per year on the capital invested. The manager at last decided upon a thorough investigation into the cause of the failure to produce goods at a profit and to obtain the views of every man in his employ who could be persuaded to express his opinion.

Now, it is not always safe nor wise to be influenced in forming an estimate of a foreman by what those who have worked under him say of him. Many men may think they have a grievance when, perhaps, they have been treated most fairly and may feel inclined to say all manner of evil things about him. Again, there may be many things in the life of a foreman that the rank and file of the men know nothing about. He represents the firm, and must carry out its wishes and enforce its rules, and if these seem harsh to the men he must stand the brunt of their hard feeling. For

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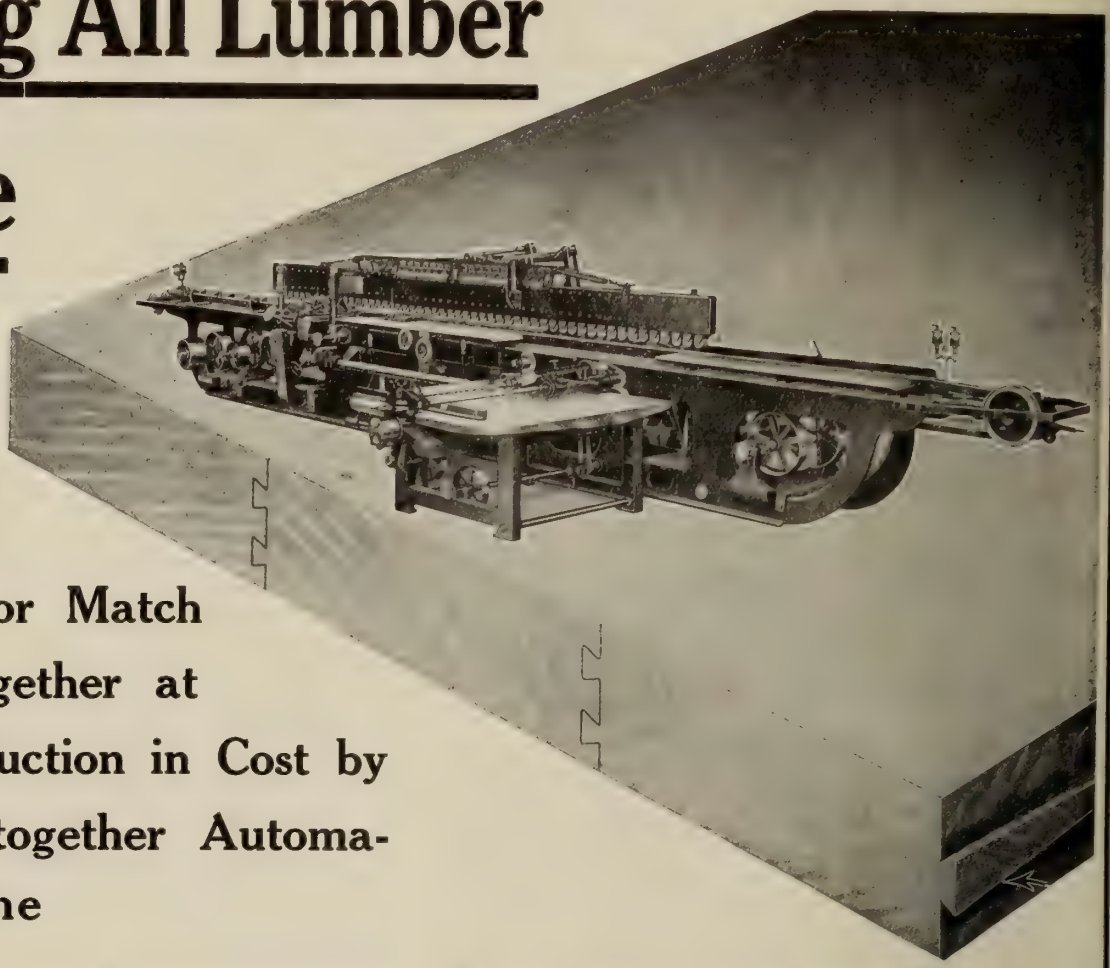

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these reasons it is not always safe to form your estimate of a foreman as a man from things the men under him say of him. But when it comes to the question of putting an estimate upon a foreman's mechanical or executive ability, there is no more safe guide than the opinion of the majority of the men working under him. But the opinion of the majority should always be obtained. Men who cannot say a word in favor of a foreman as a man will give him credit for being a hustler, a good mechanic, and possessing executive ability.

Believing this, we began our investigation among the men and the subordinate foremen. We started at the finishing room, where the cost was considerably less in excess of what the firm had estimated. The foreman there informed us that the excessive cost resulted from bad work sent in from the cabinet room. This was the department under the immediate supervision of the superintendent. The finisher said that much of the work was very little more than half cleaned up, and, as he was frequently busy in other lines, and his stainers and fillers were not all experts in wood work, much of the defective work was not discovered until it had passed through some of the various processes of finishing, and it could only be corrected then by scraping or applying extra varnish, either of which courses involved extra labor and material, and consequently increased the cost of finishing.

"Would it not have paid you to take the time and examine the work yourself and shown the superintendent any that was not right, and have it corrected before you started to finish?" he was asked.

"No, I think not," he replied, "because it would have done no good. In fact, we did that at first, but it only led to trouble. You know a man must be an expert to tell whether a piece of wood is thoroughly cleaned up before it gets a coat of shellac or varnish. I might examine a piece of work in the white and know that it would not be right with even one or two extra coats of varnish and he would not be able to detect anything wrong; consequent I would either have to swallow my complaint about the work or have a row with him, neither of which would do any good. Consequently I have simply taken the work, unless it is so bad that a blind man could see it, and done the best I could with it, and said nothing. The firm demands a certain quality of work from the finishing room, and that quality can be produced at a cost of from 30 to 40 per cent. less than the present if we can get the work right from the cabinet room."

"Did you ever say anything to the manager about the work not being right?" we asked.

"Yes, but he is not a judge of work in the white, and doesn't pretend to be. He spoke to the superintendent about it, but the superintendent said the work was all right and that I was a crank and a kicker, and always had the reputation of being one. I saw that the manager was being influenced by what he said, and that I was only making trouble for myself, so I quit saying anything about it."

"Why did you not show the work to the manager after you had a coat of varnish on, when the defects would show much more prominently?"

"I did, but he merely asked if I could not help it some by putting on an extra coat of varnish, as that would be cheaper than scraping it off. What he did further I do not know, but that was all the satisfaction I got."

Just as we were turning to leave, one of the rubbers came to the foreman and said the china cabinet which he was working on could not possibly be rubbed down without going through, owing to the rough wood work. The foreman informed him that it must be rubbed down, and if any parts were rubbed through they would have to be repaired.

We next went to the cabinet room and said to one of the workmen: "The finisher says he doesn't get any good work from the cabinet room, and that the stuff is not more than half cleaned up."

"That's no lies," said the man.

"He also says it costs one-third more to finish these goods, because of poor work, than it should."

"Well, I don't know anything about that," replied the man, "but I have often wondered how he got the work to pass. But we are paid here to do the work to suit the superintendent and keep our mouths shut and say nothing."

"The firm might be able to pay you a little more if it could get this work done at a cost that would give it a profit," we suggested.

"Well," said the man, thoughtfully, "if I could get only a very small part of the saving that could be made in doing this work I could lay somethong by for old age."

"How would you go about it to effect this saving?"

"Why, that is dead easy. I would have the work done right from the start. I would have the drafts and bills made out so that the men could understand them, and then I would insist on the men working by them. The manager thinks the superintendent is a good draughtsman, but if this furniture was constructed according to the drafts and the bills it would be the most lopsided stuff you ever saw. The construction of this furniture is determined down at the trim saw, where a case is built, and every duplicate batch has to be gone over the same way. This drafting is only a blind and helps the superintendent to kill time. At the best these drafts merely give us an idea of what the thing is to be like, and the details must be figured out by the men themselves. That is one reason why no two lots of cases are constructed exactly the same. Again, these mistakes in the bills and drafts are never corrected, as the men have no authority to change them, and they are put away, and, when again brought out, they have to be studied again to find the mistakes. Two or three hours can easily be wasted in this way."

"What effect has this on the cost at the bench?" we asked.

"Why, where there are so many mistakes to correct, the machine men are liable to overlook some, and either get some of the stuff out wrong or not get it out at all; and when we need it we have to wait until the mis take is corrected. All this, together with the confusion caused, takes up time, for which the firm must pay, and which is added to the cost of the job. The manager would drop dead if he could see the preventable waste from this cause alone."

"What is the remedy?"

"Why, that's dead easy. Get a man who knows his job and who can start it right and keep it right."

The next man we spoke to said: "There is no use asking me about how things are run here. The firm pays the superintendent for that, and not me."

"Now, look here," we said, "there is something wrong and we want to find out where it is and what it is. It is not the superintendent who is on trial any more than every man on this flat, and we are giving you a chance to offer a defence. There is some one here who is drawing more pay than he is worth, and I have not doubt there are those who are worth more than they are getting, and you think you are one of them and we are giving you an opportunity to prove it. The work on this flat is costing too much, and we must find

Continued ou page 22.

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# Furniture and Veneers

### The Mahogany Position

A prominent English timber merchant, when interviewed by the British Timber Trade Journal, said that the mahogany market was never in a better or sounder condition than at present, and that it will continue so. He argued that the producers have come to realize their real position, that they cannot continue doing business at a loss, which he claims has been done in the past. The gentleman states that some of the prudent shippers have reduced their output as much as fifty per cent., which action was necessary to enable them to show a profit on their production. As an instance of the inadvisability of a large production and little or no profit, he cited a case as it exists to-day in the mahogany business, claiming that this branch of the lumber trade requires more money to handle than any other. Greater risks have to be faced, as operators are dependent upon nature for getting their wood out. There is always the fear of insufficient rain or of too much rain, with consequent loss. In the first case an enormous loss is entailed. There are now in the creeks at Belize millions of feet of mahogany which cannot be gotten out until next year. The owners will have to bear a loss of approximately thirty per cent. due to deterioration caused by splitting and the attacks of the teredo.

The actual cost of operating is at least thirty per cent. higher in Central America, Mexico and Africa than it was ten years ago, for the simple reason that food is fully fifty per cent. higher in cost, and that wages have increased. Furthermore, the supply of trees is much more inaccessible and, as a consequence, a far greater cost is entailed in cutting and hauling logs than formerly. It is estimated that this extra cost amounts to fully $25 a thousand feet. The operators often have to haul their logs over a distance as long as fifteen miles, and when it is considered that sixteen to eighteen head of cattle are required to haul one log, the expense can be more readily comprehended. But notwithstanding the extra cost of production, the lumber has been selling up to recently at less than ten years ago. The gentleman's point seems to be well taken.

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### The Uses of Gases in Coloring of Woods

An article appeared originally in a German scientific journal and a translation was published in the Scientific American Supplement. It deals in an instructive way with the Coloration of wood to give it the appearance of age. The author, H. Wislecenas, urges the superiority of fuming as compared with dyeing, inasmuch as the former process colors the wood throughout, while the latter only affects the surface.

#### Natural Discoloration.

Proceeding first to deal with the natural discoloration of wood exposed to the air, the author says:

All wood becomes discolored in the air, and the action penetrates throughout the mass, though at an exceedingly slow rate. Often the surface soon shows a marked change, which is always due to the action of oxygen or ozone, in combination with light, heat, and moisture, upon the less stable ingredients of the wood or sap. Dust, especially if it contains iron and fungi and bacteria, may also contribute to this coloration. The effect of light is purely superficial. The yellowing of wood pulp paper when exposed to light is well known. The effect appears to be chiefly due to the ultra-violet rays. We find always two color changes, occurring simultaneously or successively, a very slow coloration of the entire mass and a comparatively rapid and striking change in the color of the surface, which may become yellow, brown, or gray.

Old wooden houses in the higher Alps have acquired a brown color of rare beauty. These inimitable tints are found only at great elevations and especially amid snow and glaciers, where the intensity of the sun's rays and of the ultra-violet rays in particular is little weakened by atmospheric absorption. Wiesner asserts that especially beautiful colors are found near bodies of water and in damp forest valleys, but this luminous red-brown tint does not occur in similar localities in the lowlands. The author has made certain observations which give some explanation of this remarkable phenomenon.

#### Exposure to Ammoniacal Effects.

The wood is always gray on the weather side of the house, which is frequently exposed to rain and snow. The sunny side is more or less brown, according to age. In some houses, hundreds of years old, the color is so dark in spots that it appears almost black in diffused daylight. The projecting ends of the floor beams are found actually carbonized or charred in very old houses. A few years' exposure produces a light brown color, and still newer houses have a pale yellow tint. Two phenomena are found in all cases: a pure gray on the weather side and an entire removal of color above the stable doors and privy windows.

The boards exposed to the ammoniacal vapors of such places are as white as the whitewashed foundation walls. The brown coloration is evidently quite superficial and unstable, as it is easily and completely removed by the moist ammoniacal vapors. The bleached spot is surrounded by a dark ring, in which the color has either been accumulated or darkened by ammonia. Close examination of the bleached surfaces shows that not only the coloring matter but all of the lignin of the wood has been removed. The superficial layer is a snow-white felted mass of fibres of pure cellulose, and gives none of the reactions of lignin. All easily decomposable incrustations are also removed by the combined action of light, air, moisture, and ammonia.

The most remarkable peculiarity of this natural browning of wood is the fact that it does not take place to anything like the same extent or beauty in the lowlands. As the traveller descends from the snow line he finds the beautiful luminous brown color gradually superseded by a gray. Wherever a bright brown color is found in wooden structures in the lowlands, it has been produced artificially by a coating of tar or other substance employed as a preservative against decay. Very probably the tannins and the ferrous salts of the sap, which are sensitive to light and air, play a part in this natural coloration. The question is well worth investigation.

### Effects of Open Air and Old Age.

When cut wood is exposed to the open air, but protected from rain, the superficial layer at first acquires a yellow color, but this is gradually changed into a gray, usually of unattractive appearance, which has nothing in common with the gray of old age which permeates the whole of the wood in the interior of old houses. According to Schramm this superficial gray color is caused by traces of iron in the wood, or in the dust of the air, in combination with ingredients of the sap, which becomes oxidized, producing a greenish or violet gray, and ultimately a "dirty" gray color. Like all iron stains, this gray can be quickly lightened or or removed by oxalic acid. The same gray color can be produced artificially by applying iron salts to some kinds of wood.

In the natural process it appears most rapidly on wooden fences, posts, and structure in dusty streets or courts; but even amid green fields and dustless air, the weather side of an unpainted wooden building always turns gray in time. Although this gray color due to iron rapidly produces an appearance of age, and is perhaps more pleasing than new wood, it does not possess the artistic value and effect of the genuine gray of age which is found in the interior of old houses.

### Artificial Coloration.

Hitherto this comparatively new process has been applied only to woods abounding in tannin, for the purpose of producing the pleasing grayish brown color, which is so highly prized in old oaken furniture. The best technical treatises give directions for this easy process of imitating old oak, and for some modern improvements by which a similar effect can be produced in wood destitute of tannin.

Fuming with ammonia is applied to the completed article of furniture or other object, by exposing it for a day or two to the combined action of ammonia and air in an air-tight chamber, in which shallow vessels containing a concentrated solution of ammonia are placed. Or the mixture may be evolved by heating a mixture of ammonium chloride (sal ammoniac) and slaked lime over a small alcohol lamp. A small quantity of amonia, together with the oxygen of the air, produces a soft brown coloration in the wood, which penetrates to a depth in proportion to the time of treatment. The usual exposure of one or two days gives a far deeper coloration than can be produced with liquid stains, yet even two or three days' exposure seldom produces an effect deeper than ⅛-inch.

The treatment for wood containing no tannin includes a preliminary application of a tannin liquid. As ordinary tannin agents do not penetrate deeply into the wood, the liquid employed is a 5 or 10 per cent. solution of pyrogallic acid, which is very easily oxidized and is deeply colored by ammonia and oxygen. But even this solution does not reach the interior of the wood and, consequently, the characteristic advantage of fuming with ammonia is lost.

### Characteristics of Thimm's Method.

The same fundamental defect exists in Thimm's method, in which wood naturally free from tannin is steeped in solutions of metallic salts and then fumed with ammonia or sulphuretted hydrogen, which produced variously colored metallic compounds in the fibres of the wood. By this method it is possible to attain a great variety of tints, but these are only superficial, and could be produced as well by the use of ammonia solution or other liquids.

Even for oak abounding in tannin, the employment of fuming with ammonia is so restricted by various causes that the process is seldom used, notwithstanding its simplicity. The quantity of tannin in oak varies in different trees and even from layer to layer of the wood, so that a striped and spotted effect is produced.

As only completed articles can be fumed, the pieces constituting a set of furniture should be, if possible, made from a single tree and fumed simultaneously in one chamber, if they are to be alike in color. Spots are also produced by oil, glue, dirt, and by careless handling of the articles before fuming, while after fuming the color, if not protected by varnish, is liable to be spotted and stained by water.

### Steaming and Color.

Treatment with superheated steam has until recently been used for the purpose of softening wood for bending, for example, in the manufacture of the well known Thonet Vienna bent wood furniture, which is made chiefly of red beech. The coloring which is incidentally produced is uncertain and is therefore avoided as far as possible. Superheated steam, however, can be employed to produce a uniform brown color through the mass of the wood. The color is due to humin bodies resulting from partial decomposition of the lignin substances (sugar, gum, tannin, etc.). Superheated steam has recently been used in America for the purpose of drying timber, and a process of coloring might be advantageously combined with the drying process.

### The New Wislecenas Process.

The principle of following nature as closely as possible is obeyed in a process, invented and patented by the writer, which is practically employed at an establishment near Dresden, with surprisingly good results. By this method, and by this alone, it is possible to produce in a comparatively short time the soft brownish gray color of age throughout the mass of large beams of every sort of wood, although not every wood is equally suited to the process.

The most beautiful effect is produced with oak, which, despite its closeness of texture, is colored throughout. Beech, elder, and birch also give good results. Of resinous woods the larch and the American varieties, redwood, cypress, and pitch pine, give the best results, but even the European birch, pine and spruce quickly lose the raw color of freshly cut wood and develop the agreeable gray tones of age instead of the usually ugly yellow-gray color caused by light and air.

The new process differs esentially from the earlier tentative methods of coloring wood by burying it in mud or animal excrement, and the result is also very different from the humin coloring of pieces of wood which have lain buried in swamps or moors for centuries. In the repulsive methods referred to, the effect is due to liquids, and is therefore more or less superficial. In the new process the coloring is effected by the natural gases of the soil, together with artificial gaseous additions. With a suitable composition of the wood, the unstable ingredients of the wood are decomposed and the stable parts are aged, ripened, and softly tinted by the humin bodies. The change has nothing in common with ordinary decay, for it can be effected in a medium like coal ashes, which is entirely free from bacteria.

The wood, in the form of planks or beams, is laid horizontally on its edge in shalow pits, and covered with the prepared soil. The pits are about twenty inches deep and have a porous bottom. The soil should be neither a pure clay nor a pure sand, but a coarse-grained mixture containing a little humus. The

size of the grain should range from one-eighth to one-fourth inch. Sifting is usually required to obtain this result. If no suitable natural soil is obtainable, moderately fine-grained coal ashes, which contain some unburned coal, instead of humus, may be employed. This material is continuously permeable for water and air, and, when frequently sprinkled or exposed to rain, remains sufficiently moist, without long retaining liquid water.

### Oxidizing Action of Air.

In the alteration of watering and drainage, air is copiously absorbed and a moist atmosphere is maintained in the soil. The oxidizing action of this moist air is greatly increased and modified by the addition of some substance which will evolve ammonia slowly and for a long time. After many experiments a perfectly clean mineral mixture was found to be a far more satisfactory source of ammonia than the foul messes formerly employed for this purpose.

The best result is obtained by adding lime and ammonia salts, or lime-nitrogen, to the soil in the proportion of one or two parts to a hundred. The chemicals are mixed with the soil by working with shovels on a board floor. In the mixing process the soil should be as dry as possible, in order to avoid rapid evolution and loss of ammonia.

If ammonium sulphate is employed, the lime may be added in the form of ground limestone, which is cheaper and more satisfactory than either slaked or unslaked lime. The ammonium sulphate gradually dissolves in the moisture of the soil and reacts with the insoluble limestone, forming calcium sulphate and ammonium carbonate, which readily decomposes into ammonia and carbon dioxide. The gradual and long-continued formation of ammonium carbonate produces a much better effect than the direct addition of a large quantity of this salt, which is expensive and decomposes too rapidly, or than the rapid production of ammonia gas by the action of lime upon ammonia salts. The effect is especially good when care is taken to drain off all excess of water, to regulate the moisture and aeration of the soil and the slow and uniform production of ammonia, and to prevent the rapid escape of this gas from the pit. For this purpose the pit, filled with the prepared soil and boards, is covered with coarse sand or rags. Too little and too much moisture are equally injurious.

Experience has shown that a large proportion of organic matter in the soil actually protects the boards from the coloring action of the ammonia and air, which in this case is exerted on the humus alone. Loose mineral soils containing a small proportion of humus or coal, on the contrary, allow the soil gases (air, water, vapor, ammonia, carbon dioxide, and probably hydrogen dioxide) to produce the desired soft grayish-brown color of age in its full beauty.

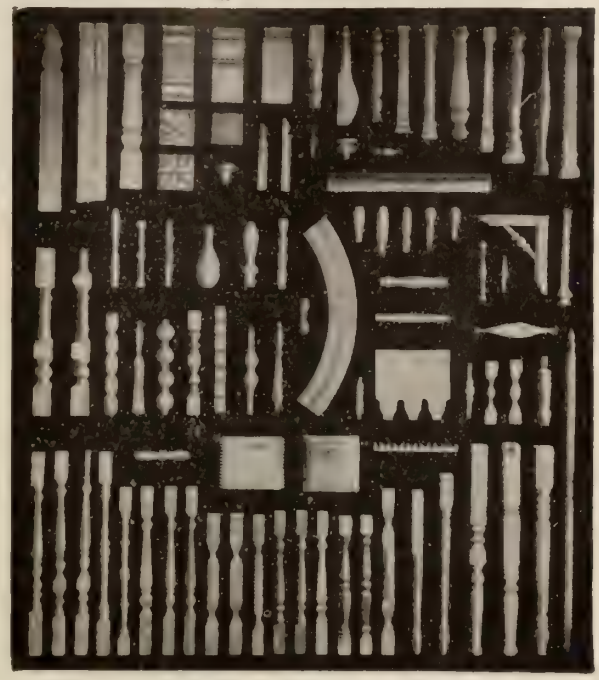
## New Pneumatic Roll Belt Sander

The newest machine on the market this season to which we would lake to draw the attention of our readers is the pneumatic roll belt sander, manufactured by by the Mattison Machine Works, Beloit, Wis.

It is claimed that this is the most universal of all belt sanders, doing a greater variety of work to a practical advantage than any other similar machine. Among its uses might be mentioned the sanding of such work as table lengths, either flat, oval, straight or curved, mirror frames, swell or serpentine drawer fronts, rounded over toilet frames, closet seats, half or quarter-round mouldings, veneered posts, shelves for cabinets, chair backs, moulded arms or most any piece

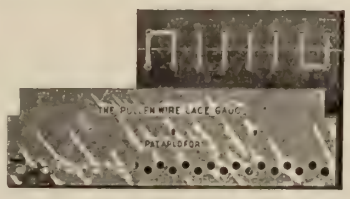

**There are Other Variety Machines**

**But did you ever see one capable of doing such a wide range of ornamental work as this?**



These samples were all made on our UNIVERSAL TURNING AND VARIETY MACHINE. The machine has earned for itself the reputation of being the "*busiest and most profitable two in the Shop.*" Wouldn't it interest you to know more about what this machine will do for you in your factory? We will gladly send you large circular fully describing it. Now is the time to look into it and it doesn't cost anything to get posted.

**C. Mattison Machine Works, 883-5th St., Beloit, Wis.**



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**PULLEN Wire-Lacing GAUGE**

Ends all troubles with WIRE-LACED BELTS. Insures perfect spacing of lace holes, perfect joints, and smooth running, long wearing belts. Instantly adjusted to any size belt, on either side or edge, and the holes punched through the Gauge quicker than without it. Pays for itself many times over in time and annoyance saved.

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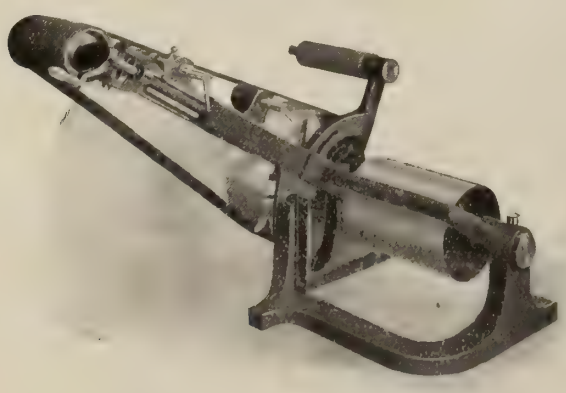
of rounded or flat work that can be readily handled by the operator. The distinguishing feature of the machine is the pneumatic rolls, over which the long sand belt is run. The contention is that this method is superior to the ordinary pneumatic drums, covered with small sand paper tubes or sleeves, as it works faster and the sand paper lasts longer. The speed of the belt is 2,500 feet per minute. The pneumatic rolls form an air cushion for the belt to glide over and allows the belt to readily adopt itself to the many shapes which cannot be handled on hard, flat rolls. These rolls also take the vibration from the operator's hands and permit of his doing much more work and doing it more easily and willingly.

The machine carries a 12-inch sand belt over a flat table 40 inches in length and 12 inches in width, which is covered with action cloth, and small flat stock is readily sanded upon it by the operator holding the same on top of the running belt. The table can be readily detached and various forms used to meet the requirements for special work.

Three rolls are supplied with each machine, two of them are hard and covered with action felt, and the other is a pneumatic roll, which, when slightly inflated, conforms to any rounded or oval shape, or, when fully inflated, forms a barrel-shaped cushion to take care of concave or hollow shapes. The sand belt can be made to run in either direction which is necessary in order to properly sand the variety of work for which the machine is adopted, and also permits of the work always being sanded with the grain.



The arm is adjustable to any position from perpendicular to horizontal to suit any operator, and affords convenience in handling various shapes of work.

The machine is strong and rigid, and, as can be seen from the pictures, is self-contained. Can be belted from either overhead or below. The rolls are oiled through hollow shafts with compression grease cups, and all main bearings and loose pulleys are provided with grease cups.

As our readers can see, this is indeed a very valuable tool, and we are sure that every wodworking factory could make profitable use of it.

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Continued from page 17.

out whether the fault is yours or the superintendent's."

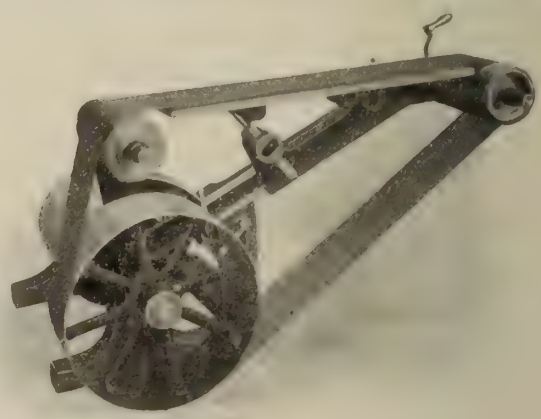
"Well, I want to tell you the fault is not mine. Nearly all day yesterday and to-day I have done nothing but repair. If the work was only done right in the first place it would cut the cost down a whole lot."

"Well, where is the cause of the trouble and whose fault is it?"

"This veneer is full of blisters and the veneer man says it is not his fault. He says he can't lay veneer if he can't get the proper things to do it with. He says his cauls are worn out and the superintendent won't get him new ones, and the core stock that comes to him is awfully rough."

"If this is so, who is to blame?"

"Why, the superintendent, to be sure. If he knew his business he would not allow things to drift along the way they do, but would have them done right the first time. But he doesn't know how to do them himself, and doesn't know if they are right after they are done. He often tells me that something is good enough, but I don't let it go, because I know there would be trouble when it got to the finishing room and I would get the blame. Now, I don't want to do anybody any harm, but I don't want to be blamed for the work costing too much when it is not my fault."



We next go to the foreman of the machine room. This man knows his business from the bottom up. In addition to many years' practical experience, he has taken a post-graduate course in mechanical drawing, and has the ability to do things right if given a chance, as he proved his worth before he came to this shop. The men who work under him admit that he understands his business. As we approach we see he is not in very good humor. To our intimation that the work up to the present has been costing too much, and that we are seeking the cause and a remedy, he replied: "Costing too much? What more could you expect? See that man on the shaper? Well, he just got his machine set up for a job, when the superintendent came down and wanted him to change and get out some mouldings that had been left off the bill of the No. 741 dresser. He said they must be got out at once, as the bench man was waiting for them. It is quite probable that when he gets nicely back on his job he will have to change again. Costing too much? It is not the work that is costing too much, but the

blundering stupidity and incompetence associated with it that is so costly. It will take the man longer to change his machine than it will take to do the job. Do you see that man loafing at the trim saw? Well, he has a draft before him and he is trying to figure out what it means. It takes him longer to interpret the drafts and bills than to do the job. Some stock bills are made out the finished length and some allow for trimming. The superintendent himself doesn't know one from the other, and the men have to figure these things out for themselves."

Just here the superintendent came and handed the foreman a slip of paper and told him to get it out at once, as the cabinetmaker was waiting for it. It proved to be some drawer divisions that had been gotten out too short. The stock-cutter got them out according to the bill, which was finished size.

"Here is another sample of expensive incompetence," continued the foreman. "Just what this stuff can be used for it is difficult to say, but it cannot be used without considerable waste, and it may eventually find its way into the fire-hole. These ought to give you a fairly good idea of where the excessive cost comes in," and here the foreman produced half a dozen other slips similar to the one just handed him by the superintendent. "I get anywhere from two to ten of these every day. The machine room that can produce goods at a reasonable cost under such conditions as prevail here is not in existence."

"Did you never direct the manager's attention to the way things were going?" we asked.

"Why, no; how could I? He never consulted me about anything, and I was not supposed to consult him. He made it quite clear when I came here that the superintendent was responsible for the work here, and he has never complained to me about the work costing too much, consequently I had nothing to say. I was never encouraged to offer any suggestions, and I supposed if he wanted any he would ask for them."

"What is the remedy for this condition of things?"

"Hold the head of every department responsible for the work of his department, and his department only. Then every man must stand on his own merits and not on the merits or demerits of some one else. Time and again this department has been used to cover up the mistakes and incompetence of the superintendent, and the machine room charged with the cost. If a superintendent is necessary, let him be one in fact, and not a sort of mongrel affair—half superintendent and half foreman."

# METHODS OF JOINTING

There are a great many ways of performing the apparently simple operation of making a wide board out of two or more narrower ones; perhaps nearly as many ways as there are kinds of breakfast food. Unlike the breakfast food, however, they are not all good; or, perhaps, as they all accomplish the desired result after a fashion, it would be better to say that all are good, but some are better than others. All the methods described are in use to-day in successful plants, but it would appear that in some cases the success was not wholly due to the method of gluing up.

### Jointing Methods and Machines.

Considering first the matter of the jointing, we have a variety of machines to choose from, the choice being influenced largely by the amount of work to be done and the size of the appropriation at our disposal. There is the common hand jointed, the travelling-carriage machine, the chain-feed machine, and the dovetailing and gluing machine.

The hand jointer to be efficient must be one of the most accurately made machines in the shop; the tables must be of good length, well ribbed, and accurately fitted to long inclines; the head would preferably be of rather small diameter, to carry two knives only, and be fitted to stand a speed of 5,000 revolutions per minute or better; the frame should have plenty of iron placed where needed, and should have three-point contact with the floor to prevent twisting. Given a machine like this, set on a solid foundation and driven by good, even belts free from bunches of lacing and the wrought iron scrap sometimes used as belt fasteners, handled by a good operator, and you may expect good joints in fairly large quantities.

It is, I believe, usual to make glue joints very slightly open in the centre, this being accomplished by slight adjustment of table after the cut. This hollow joint business, however, can very easily be overdone and should be used only just enough to insure that the joint is not the other way, rounding. If the joint is hollow a certain amount of strain must be put on the wood when it is clamped up, very slight it is true, but what is the use of any if the joint can be made straight?

### The Travelling-Carriage Machine.

The same accuracy of construction is, of course, required in the travelling-carriage machine. This machine, in which the stock is clamped in a travelling carriage which moves over the cutters and returns, has, of necessity, a considerable length which must remain perfectly true and level if good work is to result. I do not think that this type of machine has any advantage over the hand jointer in point of speed. It is most likely better, however, for long stock which is rather difficult to bring to a perfect joint on the hand machine. The travelling-carriage machine should not require nearly as expert an operator as the hand machine, as it is only necessary to fill the carriage, clamp, and take out the stock when it returns. The operator has really nothing to do with the joint after the machine is properly set. On the hand machine, there is quite a lot of "personal equation" mixed up with the joint.

There seems to be considerable difference of opinion in regard to the chain-feed machine—not on the score of quantity of work produced, as it is admittedly a great producer, but on account of the quality. The writer had experience with one of the first of these machines some years ago, which was then not exactly in its favor. The trouble was more with pioneer details of construction than with the principle. The rollers on this early machine were set on a slight slant to insure the stock staying down on the table, both before and after the cut. This was all well and good if the tables had been made in a proper manner.

The table before the cut was non-adjustable, which was all right, but the one after the cut, which, of course, must be set very exactly to accommodate just the amount of cutoff, and which must be exactly in line with the rear table, consisted merely of a strip of steel about 1¼ inches wide and ¼-inch thick. This was adjusted by means of three countersunk screws, one in the middle, and one at each end. To make matters worse the saddles carrying the spindles had to be lowered to remove cutters, and, of course, every time this was done it was a case of adjusting this strip of steel which acted as a table. Eventually this machine

was removed to another part of the shop where it was used very successfully for edge work of various shapes that did not require a glue joint. Used in this way with several shapes of cutters it did a lot of work that was formerly done on the shaper. It was replaced by a Linderman machine for jointing, of which more later.

It is only fair to state that the chain-feed machine has been greatly improved since that time and is now being used in a large number of plants with perfect success. A workman employed for over a year told me that in all the time he had never seen over one or two bad joints. In another plant it is being used to make wood seats for office chairs; if the joints will hold there they will hold anywhere. In another plant not a thousand miles from the two mentioned, an improved type of chain-jointer is lying unused and is fast disappearing from mortal ken under a pile of rubbish. Two hand jointers are used for glue joints, as well as for a lot of work that does not require glue joints. I understand that in this latter plant some operators decided that this machine would do away with one jointer man and for that reason queered it! Let us hope a more broad-mnided view has prevailed.

The Linderman machine is a very large piece of apparatus, one to work 6-foot stock being something over 35 feet long, and costing several thousand dollars. There are two feed chains on this machine moving from each end toward the centre; there are pressure rollers over these chains and the stock feed at each end is carried on these chains past the cutters, of which there are two for each chain. These cutters are somewhat similar to a Shimer head in principle and are carried on inclined spindles, which spindles are provided with very delicate adjustment, both up and down and in and out. The cutters on one end of the machine cut one or more dovetails on the stock, and those on the other end cut corresponding grooves. The stock then passes blue wheels which cover it thoroughly, and near the centre of the machine the dovetail enters the groove and travels on until the ends of boards come even, when the machine automatically trips and the united board is pushed out to the operator in the centre.

This operator, if the board is wide enough, drops it onto a sizing saw which is part of the machine, sizing it to width and putting the edging back into the machine. If the board is not wide enough the first time it trips out, it goes through again and again until it reaches the proper width. One operator and two boys handle this machine, which turns out an immense amount of work and does away with any sizing up of stock and, of course, produces no waste edges. I think it is advised that stock be put through a power-feed jointer in advance of this machine to flatten it, but unless the lumber is very crooked this will not be necessarq. Another point is that there is very little thickness wasted, as is the case with a flat joint, which it is impossible to put together so that one side is perfectly flat.

### Studying the Grip of Glue.

Some little trouble was had with this first Linderman machine on account of the glue not holding well. In that case, however, as with the other machine, the writer was what might be called a pioneer and it is always true that troubles develop for that class which are smoothed out for those who come after. The makers have now improved the machine so that even that trouble is overcome. The glue did not seem to hold and the writer doped this out as follows: Where a joint is pressed or rubbed together with glue in it, the glue enters into the pores of the wood and forms thousands of little clamps holding the pieces together. The stock sliding together so quickly after being glued, scraped the glue off before it had a chance to get into the pores. It is not the same as making a rub joint where the stock is laid together and then slid along until the ends are even. In the machine the sharp end of one board travelled the full length of its mate and when the joints were broken very little if any glue could be found.

The machine is now made to cut a wedge dovetail on a straight taper from one end of the stock to the other. This, of course, imprisons the glue in the joint until it is nearly home, when it tightens up and forces the glue into the wood, actually "welding" the pieces together.

### Clamps and Hand-screws.

Shops that do not have work enough to warrant the purchase of this machine must, of course, have some means of clamping up stock after gluing. Some plants use one or the other of several kinds of patent clamps made on purpose for this work, some use common hand-screws, others wedge up the work in various ways. It would seem that the revolving clamps would be far ahead of any other rig for this work, however, considering space occupied and time of handling work.

If it is desired to wedge up the work a very good way is to take a quantity of strips of iron about 2 by ¼-inch. Punch a ¾-inch hole in one end. Far enough from that hole to take the narrowest width to be glued, punch another. Further on put a hole for another width and so on. The holes should be sufficiently farther apart than the width of stock to admit a wedge. These are used as follows in connection with four bars of ⅝-inch round iron about 4 feet long: a pair of wood blocks with holes to match the irons are laid on the floor, a rod is put in each hole and an iron slipped on. The stock to be clamped is laid on, then another iron, then wedged, and so until the top of the rods is reached. In knocking down, the wedges were all knocked out, the boards pulled out and the irons were easily handled, being left strung on the rod.

In one place where mahogany was glued up and an extra good job wanted the stock was all jointed two edges in random widths, then sized up to make a panel of the proper width. Stock was then glued and clamped up in the centre in a powerful bench clamp operated with a large hand wheel. Two clamps, made something like the retaining clamps used with veneer presses, were then slipped on and tightened up, after which the panel was removed from the bench clamp. This method of jointing before sizing made the panels all of a width which would not be the case were they sized first. It also did away with all waste edgings. The method of clamping was slow, however, although it without doubt produced good work. In fact, a joint that was not quite right on the soft mahogany would have to come up with that squeeze.

In the same shop large lots of 2-inch oak, about 24 inches long, were glued up into pieces about 6 inches wide, to be veneered on. This stock finished 4½ to 5½ inches wide and there was more or less waste on each piece. I suppose that as it had always been done this way it would not have worked to glue this stuff up, say, 24 inches wide and rip off to size wanted with no waste.

I daresay it is true that some of the best men in the business don't notice things in their own plants which are at once visible to a stranger. It seems that the things are so near to us that we can't notice them.

# Boxes and Cooperage

## Some Possible Causes—By C. J. S.

A group of prominent shook and box manufacturers was discussing the side variation in estimates and prices on same kind of shooks and boxes. One told of having some inquiries to figure on and getting estimates from several other manufacturers. All bids were similar and close except one, which was so very much lower than the others, home figures included, it was thought that beyond a doubt the very low bidder had made a mistake, and in order to teach this bidder a lesson, it was decided to let him have the contract, and on its completion reimburse him in part for his loss. But, strange to say, the loss did not materialize, for when the final settlement came, the low bidder was asked how much he lost on the job, and said he lost nothing, but made a fair profit, just what he figured on, and would like to have more business at the same figures. Being told that his figures were very much lower than those of several leading manufacturers, he said it was they that had figures wrong, not he, as results had proven.

From this we are not to infer that the low-priced man is always right and the high-priced man always wrong. Mistakes are too numerous on both sides. In the case here cited, if the so-called leading manufacturers had dug to the bottom of things they would, of course, have found something wrong. It is not for me to say just what the error or errors were, but as it is very plain that the cost of production was too high, we may consider some of the possible causes.

One very probable cause is error in buying lumber. Lumber is the most costly item in shook and box manufacture, and many buyers make mistakes when they think they are buying wisely. It is an easy matter to fool ourselves into thinking we are getting a bargain at $1 less per 1,000 feet, while we are losing $2 per 1,000 feet in the cutting-up department on account of inferior grades. With a loss on this account of $1 per 1,000 feet, it is often more, 1,000 boxes of 5-foot each would mean a loss of $5, or ½c. per box, which is a large percentage of the direct labor cost.

It is natural to buy anything as low as possible. It is important to keep this in mind when buying box lumber, and not to forget that grade specifications will allow a difference in value of $2 to $3 per 1,000 feet. It is possible to lose as much on width, thickness and kind of lumber. Circumstances often exist whereby certain widths, thicknesses or kinds that may cost more, will save twice the amount in manufacture. If the saving in manufacture does nothing more than offset the extra cost of width, thickness and kind that gives customers a better box, it is well worth considering as a business-getter and holder of satisfied customers, who are, after all, the best advertisement any business can have.

A great deal depends on the ability of the lumber buyer to size up the situation, to know and not guess at the requirements of his factory, and not only know the lumber market by grades and prices, but keep thoroughly informed as to saw mill stocks and when they—the saw mills— are overloaded and anxious to move certain kinds that may suit his requirements. Visit the saw mills, see the stock, the grade of the grades, etc.

After the lumber is well bought, the cost of production may be, and often is, materially increased by unsystematic handling in the yard. Proper attention to regrading and sorting of widths and thicknesses to suit requirements is very necessary to cut the cost of production to the minimum. It costs no more to do things right in the yard, and makes a great saving of lumber and labor possible in the mill. With cost of us it is possible to materially lower cost of production by paying more attention to yard management.

In the mill, one possible cause of cost of manufacture being too high is too much so-called labor-saving devices, too much theory, and not enough practical know-how; too much figuring on paper how so many conveyor chains and sprocket wheels and live rolls, running so many r.p.m., will save the labor of so many men. The fact is, a box mill is complicated just to the extent it is equipped with those things, and is suited to a narrow scope of manufacture only. These devices cost money to install and maintain, and in the average shook mill are decidedly in the way, as much of the work must be done by hand in the end. Conveyors and live rolls are all right in their place—the saw mill without them is as bad as the shook mill with them.

There are many other possible causes of high cost of production. The only way to remove them is to find them. The only way to find them is by a sound cost-keeping system, keeping strict account of all operations in every branch or department of the business from beginning to end, and keeping accounts of each department separate. Get systematic reports and comparative statements from each department. Keep close tab on each machine and man. If we do this, we will learn more about the business than in any other way, and finally know when and why a shook or box has cost too much, and the remedy.

Shook and box manufacturers are in business for profit only. The difference in cost and selling price is profit. Market value is practically the same for all. It was by lowering the cost of production that our low-bid man excelled the "several leading manufacturers"—he the practical, they the theoretical.

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(*Continued from page 9*)

Market Results

| | |
|---|---|
| 3 pounds feathers per goose, 300,000 pounds at $1 | $300,000 |
| 100,000 pair goose livers at 60 cents | 60,000 |
| Two buttons per goose bill at 1 cent | 2,000 |
| 100,000 dressed geese at $1.50 | 150,000 |
| Total income | $512,000 |
| Estimated operating expense $172,000 | |
| Original capital invested 300 | |
| | $172,300 |
| Total profit | $339,700 |

Profit per share, $113,255.33, or 37,744 per cent.

I fear that some established plants are operating on lines almost as senseless as these.

# From Coast to Coast

TO CAPTURE PAPER MARKET OF WORLD.

John Norris, chairman of the paper committee of the American Newspaper Publishers' Association, makes the following assertion: "Put American paper makers in position to get their pulpwood readily and you start them upon conditions which will enable them to capture the markets of the world and to realize that dream which the organizers of the International Paper Company avowed their purpose to accomplish." Instead of using its resources to develop its machinery and improve its plant, the International Paper Company has used its funds to speculate in wood lands, so that to-day it controls between 6,000 and 7,000 square miles of timber tracts and is flirting with the provincial Government of Quebec about the location of paper plants in that section. It has three times the wood lands necessary for a perpetual supply of wood to provide its present production. Its representative before a Congressional committee figured these lands were worth $13,492,315 and that the company had made ten million dollars on the appreciate value of its wood land holdings. To strengthen its monopoly of power sites as well as of available timber areas it holds 194,582 horse power of undeveloped water power which is valued at $9,729,600. It will not develop them itself and no possible competitors can get hold of them.' '

THEY WANT OUR LUMBER.

Boston.—The Massachusetts Retail Lumber Dealers' Association placed itself on record as in favor of a Canadian reciprocity agreement. Four hundred members passed resolutions which, in part, declare: "We heartily approve of anything and everything that will tend to increase friendly and commercial relations with Canada."

TREE CUTTING.

Very novel is the method of cutting down trees that has been devised by a Berlin inventor. It consists in the use of a fine steel wire, which is looped about the tree and sawed back and forth by an electric motor. The heat generated is sufficient to burn a thin kert through the wood. A tree 20 inches in diameter can be felled in six minutes. The charred butt of the tree may easily be marked with chalk and the charred layer is so thin that it does not hide any decay or other defects in the wood.

MIRAMICHI LUMBER OPERATIONS.

Chatham, N.B.—Henry D. Morris, of the Miramichi Lumber Company, has just returned to Chatham from the scene of the company's operations at Boiestown, and reports that the cut this year will slightly exceed that of last year, and that conditions are excellent for getting the lumber out, there being three feet or more snow in the woods.

$150,000 AT MONTREAL.

Montreal.—Fifteen thousand beds of various sizes, styles and makes, representing a value of approximately $150,000, were destroyed by fire in the four storey warehouse of the Ives Modern Bedstead Company, Ltd., 117 Queen street. The warehouse was completely gutted, the fire which originated on the second storey, ravaging it clear to the roof.

MILLS TO START SOON.

Fredericton, N.B.—The Babbitt Estate mill at St. Marys will start sawing about the 6th of March. It will be the first mill in the vicinity to start operations this year. The York and Sunbury Milling Company's mill will start about the 3rd of April.

CLEANING BAMBOO FURNITURE.

Now that bamboo furniture is used so universally, a suggestion about cleaning it may not go unnoticed. This cleansing should be done with soap and warm water to which salt has been added. And the mixture must be put on with a brush and then wiped off with clean rags until the article is dry and glistens.

Ordinary laundry soap will remove the natural gloss of the wood and leave it dull if salt is not added.

CAUGHT BY CIRCULAR SAW.

Ottawa.—Cut into three sections by falling across a circular saw, Hiram Stinson met death in the sawmill of J. A. Ericksen, near Barnard Lake. He was working beside the saw, taking away the slabs, when the carriage which carried the logs was stopped to be adjusted. It is supposed that Stinson attempted to jump across the saw, and his clothing caught. His head and legs were cut off.

LONDON LUMBER PRICES SOARING.

London, England.—Each week as the Coronation draws nearer lumber rises in price, owing to the enormous quantities which will be required in the erection of stands, etc. At the present moment a small fleet of steamers is leaving Riga and other Baltic ports loaded to their utmost capacity with lumber in beams, boards and planks, destined for use in June. Ice breakers are constantly at work keeping the ports free from ice to afford passage for lumber steamers, and lumber merchants at home and abroad are rubbing their hands in anticipation of the good time coming.

FORESTS OF THE PHILIPPINES.

After several years' investigations of the forests of the Philippine Islands, Dr. H. N. Whitford is enabled to make some statements concerning their extent and richness which will be likely to surprise many readers. He says, for instance, that the virgin forest area of the islands, covering 25,000,000 acres, contains 200,000,000,000 board feet of lumber, and he contrasts this

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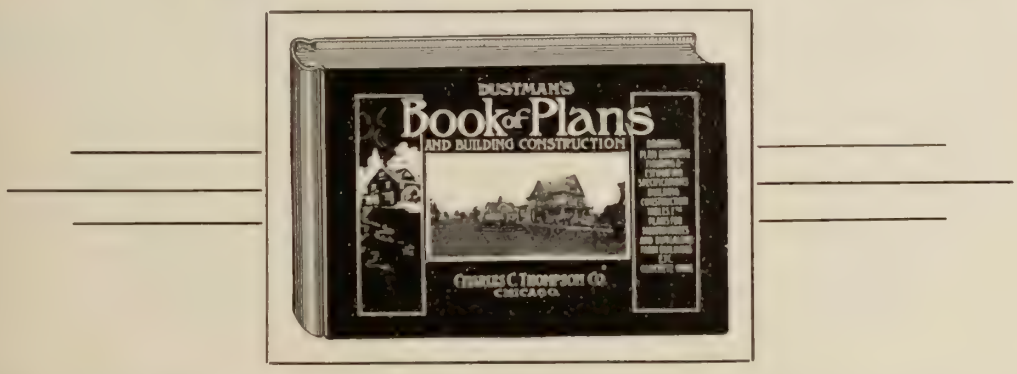


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XII Machine Tools (Cont.)
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XIV Simple Patterns (Cont.)
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with the 400,000,000,000 feet of timber growing on the 200,000,000 acres contained in the forest reserves of the United States. In other words, the Philippine forests are, acre for acre, four times as rich as those of this country. Other authorities agree with Dr. Whitford in the opinion that when the world's eyes are opened to the value of the tropical forests a great asset will have been added to the common wealth of mankind.

THREE WORKMEN LOSE LIVES IN PULP MILL.

Hawkesbury, Ont. A Terrible accident took place at the works of the Riordan Pulp Company recently. A man opened the door of a boiler. There was an outburst of steam and boiling water, and three Poles were scalded to death and beyond recognition. Another workman, named Alex Garret, had one of his arms and the side of his body horribly scorched. He is in a critical condition.

LITTLE WOOD MOVED.

Yarker, Ont. The sawmills in the country have not as yet received many logs, owing to farmers not being able to work in the swamps, and very little wood is being moved for the same reason. The Benjamin Manufacturing Company has advanced the price of hub timber to seven dollars a cord.

U. S. GOVERNMENT TO ENTER LUMBER TRADE.

Portland, Ore.—To save the immense forests of Alaska for the use of the people, the United States Government will go into the timber business, according to W. A. Langille, supervisor of the Alaska national forests, who is in Portland on Government business. Langille predicted that the development of the northern territory's timber resources, under government supervision, would mean possibly more to Alaska in a few years than mining. "Alaska contains approximately 65,000,000,000 feet of timber," said Langille, "and it belongs to the government. None of it is privately owned. Most of the forests are in the southeastern part of the territory. It is now the government's policy to go into the timber business, supplying timber at reasonable rates for the development of the country. Much timber is being sold this year, principally to be used in connection with the salmon packing plants."

ORGANIZATION OF A PULP COMPANY.

Fredericton, N.B.—The St. George Pulp & Paper Company are applying to the Lieutenant-Governor in Council for incorporation into a company the capital stock of which is to be $460,000. The chief place of business is to be St. George, Charlotte county. The provisional directors of the proposed company are to be Joseph Goodfellow, Fort Edward, N.Y.; Harriet C. Howland, Fort Edward, N.Y.; Albert C. Getten, Hudson Falls, N.Y.; Elijam W. Murphey, Syracuse, N.Y., and Edgar G. Murphy, Norwalk, Conn.

BIG CUT AT ST. FRANCIS.

One of the largest dealers in pulpwood states that there will be over 80,000 cords cut in the Fort Francis district this winter.

NEW FACTORY HERE.

Parry Harbor, Ont.—It is rumored that a branch of the Broadbent turning factory will be established in Parry Harbor this spring.

NEW FIRM AT PRESTON.

Preston, Ont.—A new firm, the Canadian-Buffalo Sled Company, has come into existence in Preston.

NEW PAPER MILL.

Espanola, Ont.—A large paper mill is to be established here this season.

A LARGE STAFF.

To-day the pulp mills of the Quebec and St. Maurice Industrial Company employ 600 men and contemplate extending their operations.

HIS THUMB CUT OFF.

Cayuga, March 4.—Yesterday morning William Sadler, who was employed in A. Lymbunner's sawmill, had his thumb completely taken off by a circular saw. He was endeavoring to extract a small chip which was giving trouble. Mr. Sadler formerly lived in London, Ont., moving here just a short time ago.

$300,000 LUMBER DEAL CLOSED.

Fredericton, N.B.—The negotiations which were being carried on by Messrs. Donald Fraser & Sons, of this city, for the purchase of the timber limits and mills at Edmundston of the James Murchie's Sons' Company, of Calais, Me., have been completed and the deal is closed. It is learned that the timber limits consist of property about 22 miles long and 6 miles deep, part fronting o nthe Maadawaska river and part on Lake Temiscouata.

The mill at Edmundston is of large capacity and one of the finest mills in the northern section of the province. It is fitted with a rotary, eight shingle machines, lath machines, planer and other modern equipment, and when in operation employs about sixty men.

The price paid for the property is not publicly stated, but it was at least $300,000.

Mr. Fraser, when asked whether the purchase of this new property by his firm would lead to the erection of a mill here and the manufacture of the lumber cut on the property in this city, replied in the negative.

TWO NEW INCORPORATIONS.

Toronto.—The George Thomson Lumber Company, Limited, has been incorporated with capital of $100,000. The incorporators are: George Thomson, Goderich, lumber dealer, and F. Thomson, Southampton, lumber dealer. George Rathbone, Limited, Toronto, capital $200,000, to manufacture and deal in saw logs, shingles, etc. The incorporators are G. Rathbone, manufacturer; T. E. Rathbone, and C. Marshall, all of Toronto.

Dryden, Ont.—Recent developments in connection with the business of the Dryden Timber & Power Company lead to a probability that the company will materially increase the capacity of the pulp mill and abandon the idea of doubling the capacity of the sawmill.

GOING IN TOGETHER.

Chatsworth, Ont.—Mr. Galbraith, of the firm of Galbraith & Airth, has purchased the interest of Mr. Airth in the planing mill and sawmill at Chatsworth, and has arranged with Messrs. W. Bumstead and W. Arthur to go into the planing mill, sawmill and lumber business in Owen Sound. They have commenced the erection of the planing mill, which will be equipped with the latest and best machinery for the purpose. The firm will be known as Galbraith, Bumstead & Arthur. The main building will be 45 x 108 feet; two storeys with basement; engine and boiler room, 40 x 24 feet; the dry kiln will be 40 feet x 60 feet.

TIMBER BERTH CHANGES HANDS.

Toronto.—Berth No. 188 on the Mississago river, in the district of Algoma, Ont., has been sold bye the Northern Timber Company to Eddy Brothers & Company, of Bay City, Mich. The berth consists of 36 square miles and is reported to contain about 50,000,000 feet of white pine of good quality. The purchase price is reported to have been in the neighborhood of $300,000. Eddy Brothers & Company own a number of other limits adjoining berth No. 188.

NEW QUEBEC CONCERNS.

Montreal.—Dorais & Sabourin, of St. Laurent, Que., have been registered as manufacturers of sashes and doors; and The Shawinigan Pulp & Paper Company have incorporated under the Quebec Companies' Act, with capital stock of $100,000. The head office of the company is Shawinigan Falls, Que.

WORKING PORTABLE MILL.

St. John, N.B.—Mr. James Hurley has erected a portable mill for sawing lumber at Hurley Brook, N.B., and will later remove the mill to Blissville, Northumberland County. About a million feet of lumber will be manufactured at each place.

LIQUIDATORS APPOINTED.

Bathurst, N.B.—The latest development in connection with the affairs of the Nepisiguit Lumber Company has been the appointment by the liquidators, Messrs. Gilbert & McKay, of Mr. P. J. Burns as manager of the concern. This announcement is accompanied with the statement that the mill will be re-operated at the commencement of the season.

NEW LUMBER COMPANY.

St. John, N.B.—The Eureka Lumber Company, Limited, of Bathurst, N.B., are applying to the New Brunswick Government for incorporation as a lumber manufacturing and selling company. The capital stock of the company is to be $80,000. The provisional directors are: J. D. Walker, Burnsville, N.B.; G. M. Goding, Auburn, Me.; E. B. Starrett, Auburn, Me., and H. A. Powell, St. John, N.B.

INDUCEMENTS TO ESTABLISH MILL.

St. John, N.B.—A movement is on foot looking towards the establishment by Chappell Bros., of Sydney, N.S., of a large saw and planing mill in the town of Dalhousie, N.B. Chappell Bros. recently acquired limits in the county of Bonaventure, Quebec, located across the river from Dalhousie. A public meeting was recently held at Dalhousie to discuss proposed inducements to Chappell Bros. It was decided to take a plebiscite upon the question. The inducements suggested are the following: 1. A free site, including water sufficient for steam purposes and to cost not more than $8,000; 2. Free water and stand pipes for fire protection; 3. Flat rate of town taxation of $5,000 for 20 years; 4. Right of way to the mill site; 5. The council to move in securing dredging services from the government and other minor privileges in consideration of Chappell Bros. agreeing to erect a long lumber mill capable of sawing from 10,000,000 to 15,000,000 superficial feet yearly, together with a planing mill to give winter employment to the workmen of the town. It is generally expected that the proposal will be carried.

DEAL IN B. C. TIMBER.

Montreal.—A report states that a $20,000,000 deal is about to be put through in connection with British Columbia timber. Messrs. G. F. Johnson and H. J. Allison, of the firm of Johnson, McConnell & Allison, of Montreal, are now on their way to England in connection with the proposition. Much of the capital, it is said, has already been subscribed. The name of the company is to be the British-Canadian Lumber Corporation. The head office will be at Montreal.

NEW INDUSTRY FOR SASKATOON.

Saskatoon, Sask.—Hon. W. H. Cushing, of the firm of Cushing Bros., Ltd., Calgary, is reported to have concluded negotiations for the purchase of forty lots of trackage in the city park section of Saskatoon, Sask., at a cash price of $15,000. The property was secured as an industrial site, and it is understood that the firm will erect a large woodworking establishment.

B. C. SALE.

Vancouver, B.C.—A sale is reported of the upper half of Tilbury Island, near New Westminster, to a syndicate of English interests. The purchase price is $150,000, of which $50,000 is reported as having been cash. It is further stated that the syndicate will immediately erect a large sawmill on the site, at a cost of $500,000. The mill will give employment to several hundred men. The site has a water frontage of 5,300 feet, and contains 170 acres. There is deep water right at the shore line.

OPEN FOR TENDERS.

Winnipeg, Man.—The assignees of the Lake Winnipeg Lumber Company, Limited, the Standard Trusts Company of this city, are receiving tenders up to March 20 for the purchase of 54¼ square miles of standing timber, on streams adjacent to and tributary to Lake Winnipeg, consisting of the following timber berths: Nos. 815, 856, 1012, 1015, 1134, 1151, and 1037. The sale will also include a sawmill and planing mill at Bad Throat on Lake Winipeg, a steamer, two barges, store, camp buildings and supplies.

# BUYER'S DIRECTORY

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Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

**BALUSTER LATHES.**
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Ober Mfg. Co., Chagrin Falls, O.
Baxter D. Whitney & Son, Winchendon, Mass.

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Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
Shurly Dietrich Co., Ltd., Galt, Ont.
Fay & Egan Co., Cincinnati, Ohio.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

**BAND SAWS.**
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The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
R. H. Smith Co., Ltd., St. Catharines, Ont.

**BAND SAW MACHINERY.**
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Canada Machinery Agency, Montreal.
Berlin Machine Works, Ltd., Hamilton, Ont.
Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

**BAND SAW MILLS.**
Berlin Machine Works, Ltd., Hamilton. Ont.
Canada Machinery Agency, Monteral.
Mussens, Ltd., Montreal.
Fay & Egan Co., Cincinnati, O.

**BAND SAW STRETCHERS.**
Fay & Egan Co., Cincinnati, O.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

**BENDING MACHINES.**
Mussens, Ltd., Montreal.
Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.

**BELTING.**
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Sadler & Haworth, Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
H. W. Petrie, Ltd., Toronto.

**BELTS (Endless).**
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Sadler & Haworth, Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt.
H. W. Petrie, Ltd., Toronto.

**BELT CEMENT.**
Sadler & Haworth, Montreal.

**BELT FASTENERS.**
Sadler & Haworth, Montreal.

**BELT DRESSING.**
Sadler & Haworth, Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt.

**BLOWERS.**
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
Sheldons, Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

**BLOW PIPING.**
Sheldons, Ltd., Galt, Ont.

**BOILERS.**
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

**BORING MACHINES.**
Canada Agency Montreal.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
J. M. Nash, Milwaukee, Wis.
Valley City Machine Works, Grand Rapids, Mich.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

**BOX MAKERS' MACHINERY.**
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Baxter D. Whitney & Son, Winchendon, Mass.
C. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

**CABINET PLANERS.**
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville. Que.
Valley City Machine Works, Grand Rapids, Mich.
Baxter D. Whitney & Son, Winchendon, Mass.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

**CARS (transfer).**
Sheldons, Ltd., Galt, Ont.

**CARVING MACHINES.**
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Valley City Machien Works, Grand Rapids, Mich.

**CHISELS.**
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.

**CIRCULAR SAW MILLS.**
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

**CHAINS (Silent).**
Jones & Glassco, Montreal.

**CLAMPS (Chain, Carpenter, Cabinet, Pattern Makers, Bench, Mitre, Piling, Mounted and Rotary Wheel).**
Black Bros. Machinery Co., Mindota, Ill.
J. A. Fay & Egan Co., Cincinnati, O.

**CLAMPS (Saw).**
Shurly Dietrich Co., Ltd., Galt, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

**CLUTCHES.**
J. A. Fay & Egan Co., Cincinnati, O.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

**COLUMN CLAMPS.**
Black Bros. Machinery Co., Mendota, Ill.

**COLUMN MACHINERY.**
J. A. Fay & Egan Co., Cincinnati, O.
C. Mattison Machine Works, Beloit, Wis.

**CORE BOX MACHINES.**
J. A. Fay & Egan Co., Cincinnati, O.
E. & B. Holmes Machinery Co., Buffalo, N.Y.

**CUT-OFF SAWS.**
Shurly Dietrich Co., Ltd., Galt, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
Simonds Canada Saw Co., Montreal.
R. H. Smith C., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

**CUTTER HEADS.**
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Samuel J. Shimer & Sons, Mitton, Pa.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

**DADO HEADS.**
C. Mattison Machine Works, Beloit, Wis.

**DISK GRINDERS.**
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.

**DOGS (Saw Mill).**
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.

**DOVETAILING MACHINES.**
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.

**DOWEL MACHINES.**
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Valley City Machine Works, Grand Rapids, Mich.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

**DRILLS (Automatic Hand).**
North Bros. Mfg. Co., Philadelphia, Pa.

**DRILLS (Reciprocating).**
North Bros. Mfg. Co., Philadelphia, Pa.

**DRILLS (Breast).**
North Bros. Mfg. Co., Philadelphia, Pa.

**DRYING MACHINERY.**
Canada Machinery Agency, Montreal.
Sheldons, Ltd., Gait, Ont.

**DRY KILNS.**
Canada Machinery Agency, Montreal.
Sheldons, Ltd., Galt, Ont.

**DUST COLLECTORS.**
Canada Machinery Agency, Montreal.
Sheldons, Ltd., Galt, Ont.

**DUST SEPARATORS.**
Canada Machinery Agency, Montreal.
Sheldons, Ltd., Galt, Ont.

**DYNAMOS.**
Canada Machinery Agency, Montreal.

**EDGERS (Gang).**
Berlin Machinery Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
Simonds Canada Saw Co., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Fisher, Sander Co., Berlin, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie. Ltd., Toronto.

**EDGERS (Single Saw).**
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
Simonds Canada Saw Co., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

**END MATCHING MACHINE.**
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler Ont.

Mussens, Ltd., Montreal.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

ENGINES (Steam).
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

EXHAUST FANS.
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
Sheldons, Ltd., Galt, Ont.

FLOORING MACHINES.
Berlin Machine Works, Ltd., Hamilton.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler.
Mussens, Ltd., Montreal.
Samuel J. Shimer & Sons, Milton, Pa.
Baxter D. Whitney & Son, Winchendon, Mass.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

FLINT.
Wausau Quartz Co., Wausau.

FLUTING HEADS.
J. A. Fay & Egan Co. ,Cincinatti, O.

GAINING MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinatti, O.
C. Mattison Machine Works, Beliot, Wis.
Mussens, Ltd., Montreal.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie Co., Ltd., Toronto.

GAS ENGINES.
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
H. W. Petrie, Ltd., Toronto.

GAUGES (Saw).
Shurly Dietrich Co., Ltd., Galt, Ont.
Simonds Canada Saw Co., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

GEAR HOBBING MACHINE.
Reynolds Machine Co., Moline, Ill.

GLUE CLAMPS.
Black Bros. Machinery Co., Mendota, Ill.
H. W. Petrie, Ltd., Toronto.

GLUE HEATERS.
J. A. Fay & Egan Co., Cincinnati, O.

GLUE SPREADERS.
J. A. Fay & Egan Co., Cincinnati, O.

GRINDERS (Cutter).
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Falls Machine Co., Sheboygan Falls, Wis.

GRINDERS (Knife, etc.).
E. C. Atkins & Co., Hamilton, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
T. A. J. Burton Saw Co., Ltd., Vancouver, B.C.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

GRINDERS (Tool).
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Valley City Machine Works, Grand Rapids, Mich.

GROOVING HEADS.
E. C. Atkins & Co., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
C. Mattison Machine Works, Beloit, Wis.
Samuel J. Shimer & Sons, Milton, Pa.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

HAND PROTECTORS.
J. A. Fay & Egan Co., Cincinnati, O.
Jones Safety Device Co., Hamilton, Ont.

HAND SCREWS.
Black Bros. Machinery Co., Mendota, Ill.
J. A. Fay & Egan Co., Cincinnati, O.

HEATING APPARATUS.
Sheldons, Ltd., Galt, Ont.

HANDLE AND SPOKE MACHINERY.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
J. M. Nash, Milwaukee, Wis.
Ober Mfg. Co., Cragrin Falls, O.
Baxter D. Whitney & Son, Winchendon, Mass.

HUB MACHINERY.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.

INJECTORS.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

JOINTERS.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

KNIVES (Planers and Others).
Shurly Dietrich Co., Ltd., Galt, Ont.
E. C. Atkins & Co., Hamilton.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.
Samuel J. Shimer & Sons, Milton, Pa.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

LACE LEATHER.
Sadler & Haworth, Montreal.

LAST MACHINERY.
Canada Machinery Agency, Montreal.

LATHES (Pattern Makers').
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Valley City Machine Works, Grand Rapids Mich.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

LATHES (Turning).
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Haspeler, Ont.
C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Plessisville Foundry, Plessisville, Que.
Valley City Machine Works, Grand Rapids, Mich.
Baxter D. Whitney & Son, Winchendon, Mass.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

LOOSE PULLEYS.
J. A. Fay & Egan Co., Cincinatti, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

LUBRICANTS AND GREASES.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

MITRE MACHINES.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

MITRE SAWS.
Shurly Dietrich Co., Ltd., Galt, Ont.
E. C. Atkins & Co., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Simonds Canada Saw Co., Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo N.Y.
H. W. Petrie, Ltd., Toronto.

MITRE CLAMPS.
Black Bros. Machinery Co., Mendota, Ill.
H. W. Petrie, Ltd., Toronto.

MORTISING MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
Black Bros. Machinery Co., Mendota, Ill.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinatti, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Jones & Glass Co., Montreal.
Mussens, Ltd., Montreal.
Plessisville Foundry Co., Plessisville, Que.
Valley City Machine Works, Grand Rapids, Mich.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

MOTORS.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.

MULTIPLE BOXING MACHINES.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
J. M. Nash, Milwaukee, Wis.

PATTERN SHOP MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Baxter D. Whitney & Son, Winchendon, Mass.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

PICTURE FRAME MACHINERY.
Black Bros. Machinery Co., Mendota, Ill.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.

PLANES.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.

PLANERS.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Baxter D. Whitney & Son, Winchendon, Mass.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

PLANING MILL MACHINERY.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Macihnery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Samuel J. Shimer & Sons, Milton, Pa.
Baxter D. Whitney & Son, Winchendon, Mass.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
Black Bros. Machinery Co., Mendota, Ill.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie Co., Ltd., Toronto.

PULLEYS.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinatti, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

QUARTZ.
Wausau Quartz Co., Wausau.

RESAWS.
Shurly Dietrich Co., Ltd., Galt, Ont.
E. C. Atkins & Co., Hamilton, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency Montreal.
Simonds Canada Saw Co., Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinatti, O.

Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

RIM AND FELLOE MACHINERY.
J. A. Fay & Egan Co., Cincinnati, O.

RIP SAWING MACHINES.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

ROLLER BEARINGS.
Mussens, Ltd., Montreal.

SAFETY GUARDS (For Band Saw Machines, Jointers, Rip Sawing Machines, Shapers, Swing Saws, etc.).
The Jones Safety Device Co., Ltd., Hamilton, Ont.

SANDERS.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
J. M. Nash, Milwaukee, Wis.
Ober Mfg. Co., Chagrin Falls, O.
Plessisville Foundry, Plessisville, Que.
Fisher Sander Co., Berlin, Ont.
Black Bros. Machinery Co., Mendota, Ill.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

SAND.
Wausau Quartz Co., Wausau.

SANDPAPER.
Black Bros. Machinery Co., Mendota, Ill.

SANDERS (Moulding, Belt and Panel).
Black Bros. Machinery Co., Mendota, Ill.
H. W. Petrie, Ltd., Toronto.

SASH, DOOR AND BLIND MACHINERY.
Berlin Machine Works, Ltd., Hamilton.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Samuel J. Shimer & Sons, Milton, Pa.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
Black Bros. Machinery Co., Mendota, Ill.
H. W. Petrie, Ltd., Toronto.

SAWS (Hand).
Shurly Dietrich Co., Ltd., Galt, Ont.
E. C. Atkins & Co., Hamilton, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
Simonds Canada Saw Co., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.

SAW MILL MACHINERY.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.

Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

SAW SWAGES, AUTOMATIC FILERS.
E. C. Atkins & Co., Hamilton, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

SAW TABLES.
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

SCRAPING MACHINES.
Baxter D. Whitney & Son, Winchendon, Mass.

SCROLL SAWS.
Shurly Dietrich Co., Ltd., Galt, Ont.
E. C. Atkins & Co., Hamilton, Ont.
Canada Machinery Agency, Montreal.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.

SECOND HAND MACHINERY.
Canada Machinery Agency, Montreal.
Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

SHAPERS.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Plessisville Foundry, Plessisville, Que.
Samuel J. Shimer & Sons, Milton, Pa.
Baxter D. Whitney & Son, Winchendon, Mass.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

SHAVING COLLECTORS.
Canada Machinery Agency, Montreal.

SINGLE SPINDLE BOXING MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.

SLAVE SAWING MACHINE.
Baxter D. Whitney & Son, Winchendon, Mass.

SURFACERS.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Baxter D. Whitney & Son, Winchendon, Mass.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

SWING SAWS.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Plessisville Foundry, Plessisville, Que.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

TABLE LEG LATHES.
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Baxter D. Whitney & Son, Winchedon, Mass.

TENONING MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

TOOLS (Hand).
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Samuel J. Shimer & Sons, Milton, Pa.

TRIMMERS.
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.

TRUCKS.
Sheldons, Ltd., Galt, Ont.
Hespeler Machinery Co., Ltd., Hespeler, Ont.

TURNING MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Plessisville Foundry, Plessisville, Que.
Baxter D. Whitney & Son, Winchendon, Mass.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

UNDER-CUT SELF-FEEDING FACE PLANER.
J. A. Fay & Egan Co., Cincinnoti, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Falls Machine Co., Sheboygan Falls, Wis.

GUMMERS, ETC.
E. C. Atkins & Co., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.

UNIVERSAL WOODWORKER PLANER.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt Ont.
H. W. Petrie, Ltd., Toronto.

VENTILATING APPARATUS.
Sheldons, Ltd., Galt, Ont.

VENEER DIERS.
Sheldons, Ltd., Galt, Ont.

VENEER PRESSES (Hand and Power).
Canada Machinery Agency, Montreal.
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Hydraulic Press Mfg. Co., Mount Gilead, Ohio.
Mussens, Ltd., Montreal.
Black Bros. Machinery Co., Mendota, Ill.

VISES.
Mussens, Ltd., Montreal.

VISES (Band Saws).
Shurly Dietrich Co., Ltd., Galt, Ont.
Simonds Canada Saw Co., Montreal.
E. C. Atkins Co., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver. B.C.
H. W. Petrie, Ltd., Toronto.

VISES (Pattern Makers').
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.

VISES (Circular Saws).
E. C. Atkins Co., Hamilton.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
H. W. Petrie, Ltd., Toronto.

WAGON AND CARRIAGE MACHINERY.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Baxter D. Whitney & Son, Winchendon, Mass.

WOOD PULLEYS.
Canada Machinery Agency, Montreal.
Plessisville Foundry, Plessisville, Que.

WORK BENCHES.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.

# After the Whistle Blows

**The Bait.**

"John," said Mrs. Brown, sitting up suddenly in bed, "there's a burglar in the place!"

"Nonsense!" replied her husband drowsily.

"I'm quite right," she returned. "I can hear him distinctly crossing the floor of the room below. Now" —excitedly—"he's lighting one of those cigars I gave you for your birthday. I heard him pick up the box and put it down again."

Then John sat up and listened.

"By Jove, Mary, you're right!" he answered. "He is! He's actually smoking one of those—er—er—those cigars."

Then he nestled once more comfortably beneath the blankets.

"Go to sleep again, Mary," he said complacently. "We'll find the poor wretch in the morning."

---

**Served Him Right.**

"Here, waiter, there's a fly in my soup."

"Serves the brute right. He's been buzzin' round here all the mornin'."

---

**The Dashing Taxi.**

"Drive like the dickens!" shouted Smith, springing into the taxi.

With a lurch the car darted forward, and away they went like lightning through the gathering fog. Crush! They took off the wheel of a passing waggon. Hi hi! They missed flattening out a small child by two-ninths of a hair. Clang! They upset a milk cart. People shouted, contables impotently held up their hands, as the taxi dashed up one street and down another, taking corners on two wheels, and threatening every lamp post with destruction. At last, after half an hour's furious racing, they slowed up in a narrow thoroughfare, and Smith poked his head out of the window.

"Are we nearly there?" he asked breathlessly.

The chauffeur turned in his seat and shouted:—

"Where did you want to go, sir?"

---

**Fair Warning.**

The wife of a clergyman warned him as he went off to officiate at a funeral one rainy day: "Now, John, don't stand with your bare head on the damp ground; you'll catch cold.

---

**Cruel!**

"In some of the provincial theatres the arrangements and construction are absurdly old-fashioned," remarked a conceited actor. "Last week, for instance, I was playing Hamlet at Seaport. There was an alarm of fire, and it took no less than ten minutes for the audience to pass through the doors."

"The poor fellow was lame, I suppose," was the cruel comment.

---

**A Different Proposition.**

I was waiting near the elevator in the factory building for my friend when I noticed a small boy sitting in one corner of the hall holding a large, thick sandwich. He eyed the sandwich lovingly for a long time, then he carefully lifted off the top slice of bread, took out a piece of pickle, ate it, and replaced all as before. In a few seconds he again removed the top piece of meat and replaced the top. Again and again the performance was repeated until all the pickle and almost all of the meat was gone, the sandwich, however, appearing intact as in the beginning. "Why don't you eat up your sandwich and not pick at it in that way?" I asked the boy with some curiosity.

"Why," he answered, looking up with great importance, "it ain't my sandwich."

---

**Shocking!**

The deacon's wife wanted to jot down the text, and, leaning over to her scapegrace nephew, she whispered: "Have you got a card about you?"

"You can't play in chapel," was his solemn, reproving answer. And the good woman was so flustered that she forgot all about the text.

Quills is a commercial traveller returning home only at the week-end. Last week an interesting event was expected in the family, and Quills was to receive the news by telegram. When it came he was thunderstruck. The telegram ran as follows:—

"Twins this morning. More later."

---

A farmer wrote to the editor of an agricultural paper as follows: "I have a horse that has been afflicted for the past year with periodical fits of dizziness. Please let me know what I should do with him, as he seems to get worse instead of better. I am afraid he will be unfit for work if something is not done soon."

In the next issue this answer appeared:—

"When the nag is looking all right, sell him to someone."

---

**The Best Side.**

Cholly Masher (to the photographer): "Be sure and show the collar and eyeglass, and don't forget to give the cane the correct pose."

Photographer: "Certainly not. Now, hold steady. All right! It's done, sir."

Cholly: "Done, is it? Are you quite sure you have taken the best side of my head?"

Photographer: "Quite sure, sir. I took the outside."

---

A quarrel had arisen between the editor of a newspaper and a subscribed.

"Sir,—I don't want your newspaper any longer," wrote the subscriber."

"Sir,—I wouldn't make it any longer if you did," was the editor's retort.

---

**At the Theatre.**

An old lady who rarely went to the theatre was in the front row trying to see what was going on. A young man, seeing that she was short-sighted, drew his binoculars out and said, "Won't you have a glass, madam?"

The old lady, glancing about her, slipped a handkerchief over the binoculars and placed them in her lap. Then a moment later she raised them to her lips surreptitiously. A flush came to her cheeks, and she whispered to the young man, angrily, "You've been making fun of me. There isn't a blessed drop in the glass."

# "Amphibia"

**Waterproof**

# Leather Belting

is made to do hard work in a wet place better than any other Belt. Let us prove it to you by sending a Belt on trial.

We always carry a full stock of all kinds of Leather Belting.

## Sadler & Haworth

**Montreal - Toronto**

**The New Slow Speed**

# Sheldon Exhaust Fan

**The Fan that is revolutionizing the Shaving Exhaust Business**

It will handle wet or dry, long or short shavings and sawdust, and will do this work with a guaranteed reduction in speed of from 25% to 40% less and with a power consumption of 20% to 35% less, than any other exhaust fan. The Casing is very similar to that formerly used, but the wheel is of an entirely different design.

**Let us tell you more about it**

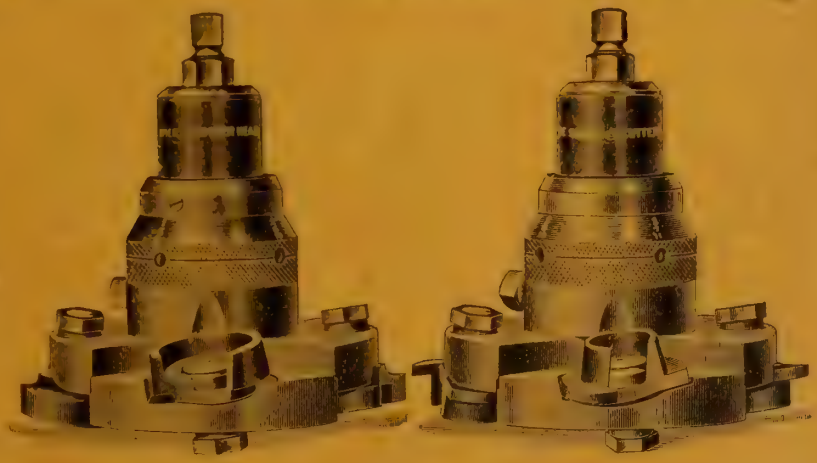
## SHELDONS LIMITED - Galt, Can.

# Produce More and Better Work

**With Tools that Last Longer and are Easier to Operate**

**Flooring, Ceiling, Siding, Wainscoting, Ship Lap, etc. or Door and Sash work can be manufactured more profitably if your machines are fitted with Shimer Cutter Heads that have the "make-ready" built into them.**

LET US MAKE YOU A SET AS A TEST



You will find that you will be saved the filing to shape at each sharpening of the Cutters—that there is no "fitting and trying" to be done, as the Shimer Cutters have the shape of pattern turned into their contours—that the Shearing or Shave Cut provided for by the set and shape of the Circular Bits does away with much of the friction produced by straight cutters, the consequent burnt and blackened edges and the tendency to roll up fibres when operating on soft pine or green lumber; you will also find that a larger per cent. of No. 1 lumber can be graded from each batch run through your machine—all of which will help to reduce your operating expenses.

Machines to-day carry faster feeds; the spindles in them run at greater velocity; the Heads must sustain increased working strains as well as to overcome the power of centrifugal force. Metals must be stronger, tougher and more firm in grain and texture to successfully meet the requirements of to-day. To this end the Shimer Cutter Heads are made of steel that is forged and hammered into dies. We use this metal because of its close grain, uniform solidity and dependable strength.

Many matchers and moulders are operating to-day below their maximum capacity, in quantity as well as quality, because they are not provided with Shimer Cutter Heads.

Let us send you full particulars about our latest makes—how they can be expanded to suit different thicknesses of material in an instant—how they will remove many of the annoyances which come up daily.

**See that you get the genuine.**—Look for the NAME and TRADE MARK **"The Shimer Cutter Head"** stamped on every Head we turn out. A dealer who would sell you an imitation means to deceive you—send them back and demand the genuine article with our guarantee for your protection.

**Branch of Milton, Pa.** **Samuel J. Shimer & Sons,** **Galt, Ontario, Can.**

You make inquiry of us about a Whitney Planer, single or double surfacer and we will make it as plain to you as we have to the most exacting wood workers. The entire fitness of Whitney Planers in turning out the the finest kind of surfacing on any kind of timber brought to them, as well as their ableness to produce quantities of this high grade work and stand up to it as a regular thing.

In fact outside of downright abuse no single or double surface planer will stand up to the work like a Whitney. Time and again this has been made clear, so much so that in more than one instance other plaining machines have been discarded to make room for a Whtney.

Write your inquiry and we will thoroughly satisfy you as to how Whitney Planers are built. What they will stand, their economy of maintenance, and their production which will not fall short of proving up to you the real planer value there is in a Whitney.

# Baxter D. Whitney & Son

**Winchendon, Mass.**

WYSONG & MILES CO., Greensboro, N.C.

Agents for Virginia, North and South Carolina, Georgia, Florida and Eastern Tennessee

Pacific Coast Sales Department,
H. H. PLUMMER, Manager,
Pacific Building, Seattle, Wash.

HENRY KELLEY & CO.
26 Pall Mall
Manchester, England

# CANADIAN WOODWORKER

Vol. 9 Toronto, April, 1911 No. 4

RACINE

## Shaper Guards

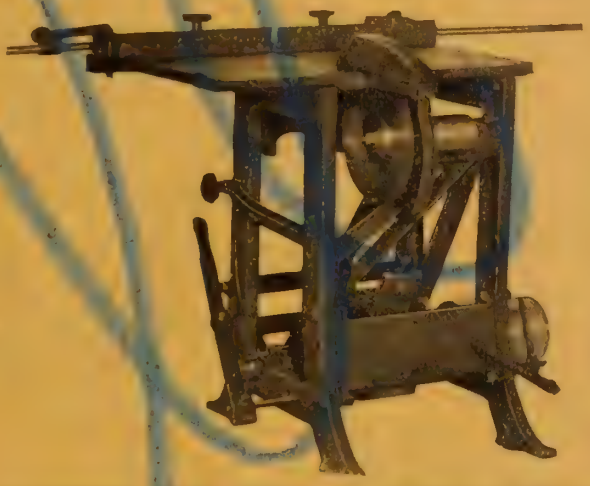
Proect the Operator and
SAVE DAMAGE SUITS

Endorsed and recommended by all Factory Inspectors.

Write for Prices and full Particulars, Free

**Fair Mfg. Co., Racine, Wis.**
BOX E

## Lightning Cut-Off Saw



**TO PRODUCE MORE WORK, TO INCREASE PROFITS**

We suggest our Lightning Cut-Off saw. Is self contained. Feed semi automatic. Saw mandrill runs in self oiling bearings.

*Write us for particulars and price*

**THE SOUTHAMPTON IRON WORKS**
Southampton, Ont.

From

## Nova Scotia to British Columbia

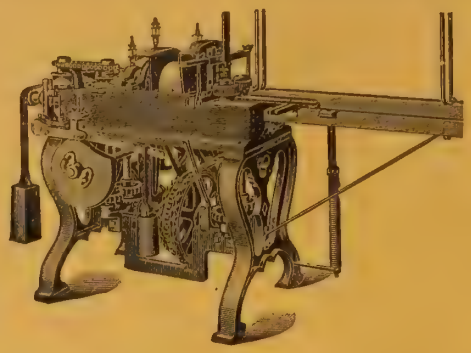
**Burton's** Saws are to be found in Mills, large and small.

We can tell you, or show you, good reasons, for this wide-spread sale.

Ask the Millman down street what he thinks of our saws, and if he is a user, he'll prove to be our best salesman.

Let us send you some facts about saws in general, and Burton's Saws in particular.

**THE A. J. BURTON SAW CO. Limited, VANCOUVER, B.C.**



# This is a Cut of the No. 10 Ober Lathe

for turning Fork, Hoe, Rake, Mop, Broom and Ice Hook Handles, Pike Poles, Tent Poles, Trolley Poles, Curtain Poles, Chair Bows, Dowels, Rods and Similar Work.

**Simple—Strong—Durable—Economical**

We also manufacture other Lathes for making Spokes, Handles and Variety Work; Sanders, Shapers, Boring and Chucking Machines, etc., etc.

Complete Catalogue and Price List Free.

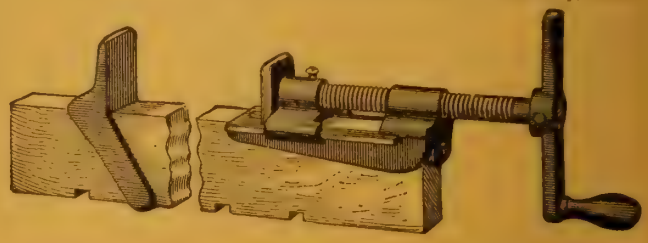
## The Ober Mfg. Co.

**31 Bell St., CHAGRIN FALLS, O., U. S. A.**

# Clamp Fixtures, Per Set, 50 Cents

Gentlemen :—We are pleased to state that the 25 dozen Patent Maleable Clamp Fixtures which we bought of you a little over a year ago are giving excellent service, We are well satisfied with them and shall be pleased to remember you whenever we want anything additional in this line.

Yours truly, CURTIS SASH & DOOR CO.,
Sioux City, Iowa.



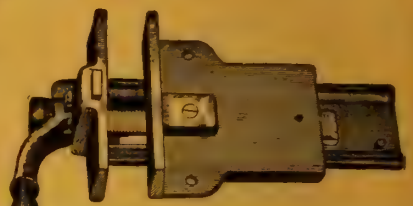
No. 1

STEEL BAR CLAMPS

The bars of our STEEL CLAMPS are especially tempered and guaranteed indestructable. Screws and fitting quickest possible action and made to stand any service or abuse. Don't fail to test sample of this clamp before you buy elsewhere.

**Over 26,000 of our Steel Rack Guaranteed Vices**

now in use. We solicit the priviege of submitting samples of these specialties on terms that will be attractive to rated firms. Write for list and prices.



RAPID-ACTING WOODWORKER'S VISE No. 3

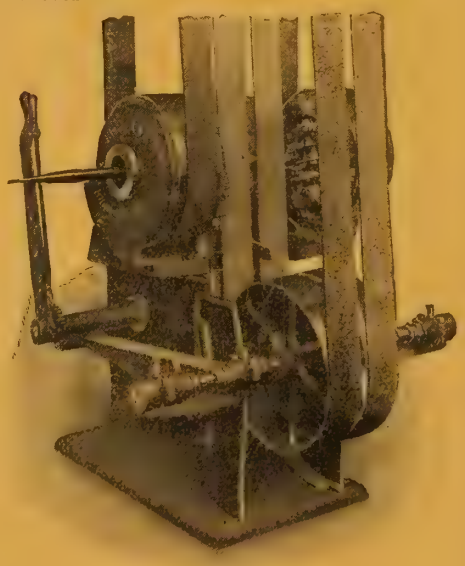
**E. H. Sheldon & Co., 326 N. May St., Chicago, Ills**

# One Boy with a NASH SANDER

will sand as much round work as five men with HAND BELTS and do it better

Now you can figure out the saving on :

**Chair Stock,**
**Dowel Rods,**
**Shade Rollers,**
**Curtain Poles**
**Hoe, Fork,**
**Rake, Shovel and Broom Handles,**
**Whip Stocks,**
**Canes,**
**Tenpins,**
**Veneered Columns and Other Round Work**



with some of my customers it runs as high as 85%.

## J. M. Nash, Milwaukee, Wis.

**842-848 30th Street.**

**Carborundum Knife Grinding Wheels have cut their way into favor in many of the most prominent wood working establishments in the country**

They not only do twice the work of any other grinding wheels—but they do it better and cleaner. They stand up well—do not burn the work—do not draw the temper even from the finest steel. Require almost no attention and last much longer than other abrasive wheels.

**THE CARBORUNDUM COMPANY**

**Niagara Falls, New York.**

No. 281 Ball-Bearing Cut-off Saw. Capacity for Material up to 21-in. wide, 1-in. thick or 16-in. wide, 3-in. thick.

# Throw Out Your Old "Man Killer"

Put in our New No. 281—The lightest running and quickest acting cut-off saw on the market for use in furniture factories, cabinet shops, etc.—a machine that will increase the efficiency of your plant. The initial cost is not much and will be more than made up in a short time by the increased output.

JUST a word about this cut-off saw—the carriage is on frictionless steel balls running in planed ways and spring bumpers start the carriage on a quick return, making it the easiest-running cut-off saw to be had. A man can run this machine ten hours every day without tiring—something impossible on the old roller-style machines.

For quick and accurate work on light stock—the machine is in a class by itself. It will cut your labor and power bills for for this kind of work in half.

You have to push this table to appreciate the difference. Let us put one into your plant. If it don't back up what we say—send it back

Write for large illustrated circular.

## J. A. FAY & EGAN Company

Mfrs. of Wood-Working Machinery. 153-173 W. Front St., Cincinnati, O.

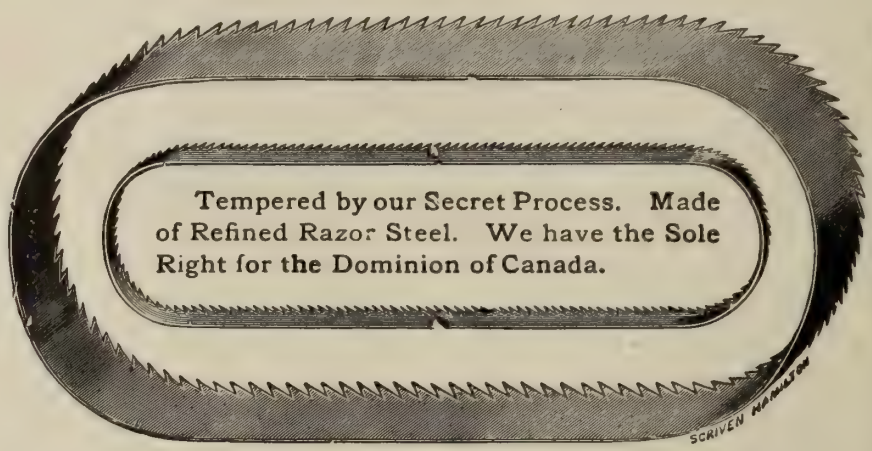
Sales Offices: St. Louis, New York City, Buffalo, Chicago, Evansville, New Orleans, Baltimore, Atlanta, Detroit. San Francisco, Los Angeles, Seattle, Grand Rapids.

# Maple Leaf Saw Works

**Shurly & Dietrich, Props.** **GALT, Ont.**

LARGEST SAW MANUFACTURERS UNDER THE BRITISH FLAG

We manufacture Circular Saws Gang Saws Mill Saws Band Saws Cross Cut Saws Buck Saws Saw Setts etc.



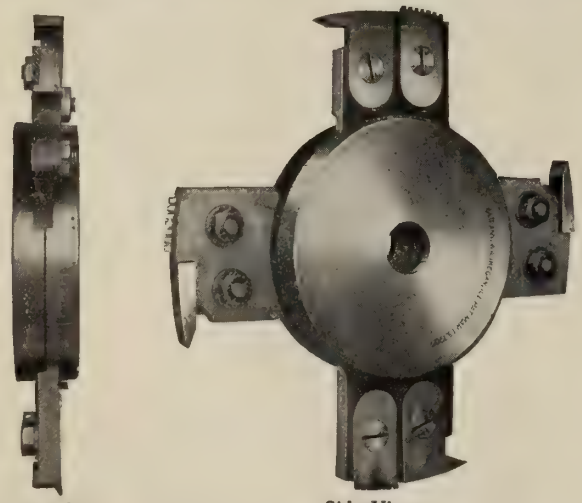

We manufacture high-grade **Band Saws** of all Widths and Lengths

These Saws are made of Refined Razor Steel, and Tempered by our Secret Process; for Fine Finish and Temper are not excelled.

**"Maple Leaf" Saws** are the best-tempered saws made

We are the only manufacturers in the world who export Saws in large quantities to the United States

## A Matter of Adjustment



Front View Side View

**THE Hall Adjustable Dado or Grooving Head**

adjusts to the fineness of 1/64 of an inch and can be adjusted for any size groove within the scope of the Cutter in half a minute.

These adjustable features are peculier to the "Hall" and are entirely novel.

There is no manipulation of bolts, screws, washers or nuts in making the adjustment, which means there is nothing to work loose.

Our Booklet C. 2 will prove interesting reading and will give you a full description of the Hall Cutter-head suited to your needs.

**The Pamphlet is free—just ask.**

**Write us for prices on other machinery**

**Hall Cutter-Head Company, Incorporated**

Factory, Waukegan, Illinois 303 Trude Building, CHICAGO, U.S.A.

LIVE AGENT WANTED

## Robinson Improved Saw Gage

**Made in Canada**—Saving Duty and U. S. Freights for Canadian Purchasers. Sent on 30 days Free Trial. If not entirely satisfactory, send it back at our expense. This Gage will save Time, Material and Mistakes, thus economizing from 50 cents to $1.00 on every thousand feet of lumber cut with it. Hundreds are in use saving their cost many times over each year. Rod and stops are threaded so stops cannot be jarred along by impact of the board, but at one point in the turn can be lifted off and dropped on rod again at any desired point. Cutter can hit any stop "like any key on a piano."

Patented in U. S. and in Canada.

Write for prices, describing kind of saw used — length wanted, and whether right or left-hand.

**J. J. Robinson,**

**Patentee**

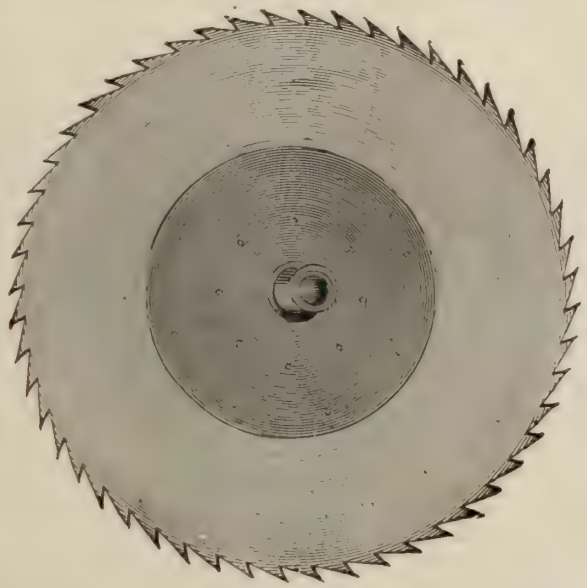
Bloomsburg, Col. Co., Pa., U.S.A.

# R. H. Smith Co., Limited

## St. Catharines, Ontario

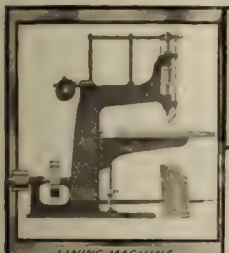
MANUFACTURERS OF THE CELEBRATED "GOLD COIN" SAWS

**We make Inserted Tooth Saws, Shingle Saws, Cross Cut Saws, Hand Saws, etc., etc.**



**We make every kind of Saw required in Saw Mills, Planing Mills, Furniture Factories, Piano Factories, Carriage Factories, etc., etc.**

We have been manufacturing for the Canadian trade since 1855, and have maintained the same high standard of excellence. Let us know your saw requirements.


LINING MACHINE

VERTICAL BORER

DOWEL MACHINE

CARVER

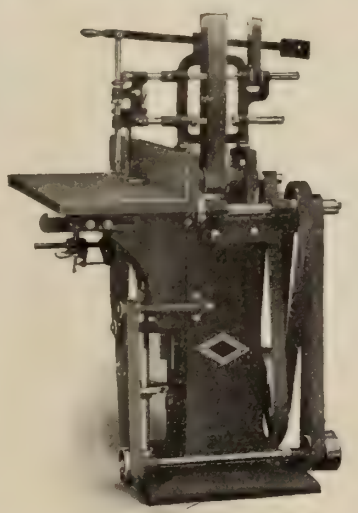
# WOOD WORKING MACHINERY

VALLEY CITY MACHINE WORKS GRAND RAPIDS MICH. U.S.A.

## WANTED

**in every furniture, chair, planing mill and interior trim plant, at least**

**One Improved Oscillating Lock Mortiser**

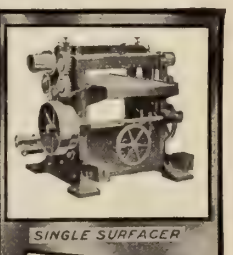


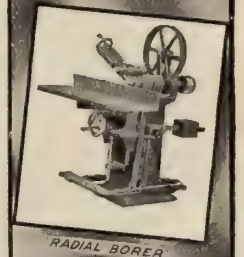
This machine will mortise locks, including keyhole and salvage in one operation. Cuts from ¼" to 1" in width, from ¼" to 5" in length, has automatic feed for depth and width of cut and will work any style oval or curved drawer front, make any size keyhole in two seconds, and will cut a lock mortise and keyhole in doors that are all ready put together. A great labor saver. Will mortise at least seventy pieces an hour.

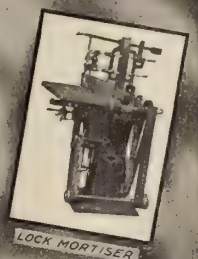
**Glad to go into full details of planer or mortiser—or both if you write**

## Valley City Machine Works

**16 Campau St. - Grand Rapids, Mich., U. S. A.**


SINGLE SURFACER

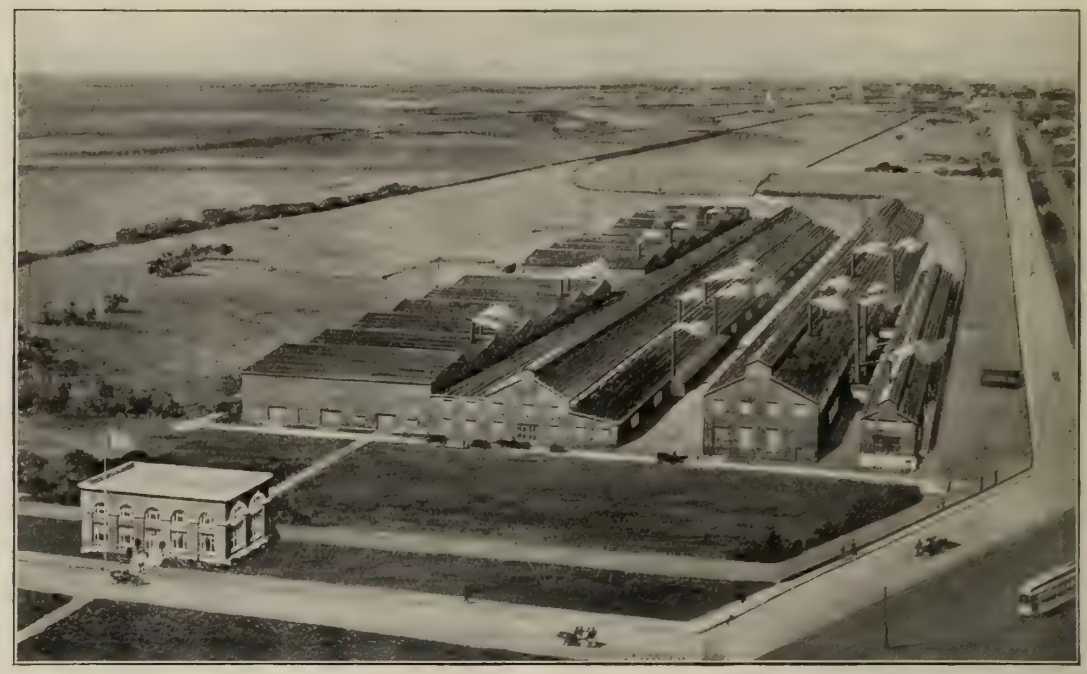

RADIAL BOREA


LOCK MORTISER

WOOD LATHE

# New Simonds Steel Mill

**A Complete New Steel Mill for Simonds Saws has been built and is now in operation at Lockport, N.Y.**



**Simonds Saw orders for the spring of 1911 will not be delayed in the least because of any lack of steel. The new mill settles that question.**

**Simonds Saws made from Simonds Steel are now up to the highest known standard of material in the steel from which they are constructed. The Lockport mill is to make this special grade of saw steel almost exclusively, and it is only for use in the manufacture of Simonds Saws.**

"Go find a suitable location and build an entirely new Simonds Steel plant," was the startling suggestion offered by a director of the Simonds Manufacturing Company when the subject of "service" was being discussed in a meeting, one day last spring.

Simonds Saws were selling faster than they could be made and delivered satisfactorily. The trouble was with the amount of steel being made by the original mill. The three factories, Fitchburg, Mass., Chicago, Ill., and Montreal, Que., could make the goods all right, but they couldn't get enough of our own high grade crucible steel, which is the only kind that will be put in Simonds Saws.

The problem had to be met. The suggestion of the director proved the best solution. Plans were at once made for a new mill. Lockport, N.Y., was selected as the location. Work of construction began early in the summer. The first steel was rolled Monday, January 2nd, 1911.

Briefly, that is the story of one of the biggest tasks ever accomplished by a Saw manufacturer. A more detailed account would tell of the months of strenuous work, getting men and materials on the grounds at Lockport; inspecting and passing the materials purchased for construction; and the constant pushing of construction work. Today the buildings are up as planned, the machinery is installed, and everything is being rounded out in the most convenient shape.

The accompanying illustration gives a view of the outside of the Simonds Steel Mill. Fourteen acres of land are covered by the buildings and immediate yards; and in all there are eighty acres of land here belonging to the Simonds Company.

The special saw steel properties which Simonds Steel possesses is primarily the result of using, in the first place, the right mixture for Steel making. Our principal reason for embarking in the steel business eleven years ago was on account of our not being able to buy from existing mills a uniform steel with a guaranteed mixture made to our specifications. Simonds steel is made according to a secret formula that is not elsewhere duplicated. Nothing that bears the name of "Simonds" has ever been made from anything but the very best of materials and in a crucible furnace.

Uniformity — uniformly good—is our constant watchword. Careful chemical analysis is made on every heat turned out of the mill. The physical properties of the steel are also tested out. We know of no other steel mill in the United States that is so thorough as the Simonds Lockport mill in the testing of steel.

The machinery of the Lockport mill is thoroughly modern. All that is latest and most up-to-date in scientific crucible steel making is made use of here. New machinery and new methods enable us at once to double our former steel production. The mill is entirely electrically equipped. Electric current is brought on high voltage wires direct from generators at Niagara Falls.

When the difficulties of making Saw Steel are fully realized it will at once be seen why we do not go into the open market and buy any old steel for the making of Simonds Saws. Our satisfaction never stops short of a Saw that will satisfy the most exacting mill man. So, making our own Simonds Steel is a necessity to maintain the quality which has put and will keep Simonds Band, Circular, Cross-Cut and Hand Saws in the leading position which they now occupy.

The increase of our steel-making ability which the new Lockport mill brings to us is an excellent investment, the benefits of which will be enjoyed wherever Carpenters use Hand Saws or Mill and Lumber men use Mill Saws.

## SIMONDS CANADA SAW CO., LIMITED

**Montreal, Que.** **St. John, N.B.** **Vancouver, B.C.**

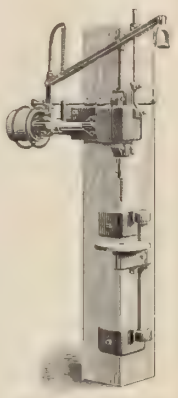
Auto Wheel Finishing Stand

Quality is remembered long after the first cost of any article.

# "Defiance Woodworking Machines"

represent a quality unknown only to those using machines of inferior manufacture.

Our tools are strong and well made for the accurate production of Hubs, Spokes, Rims, Wagon, Carriage, Automobile and **Heavy Auto Truck** Wheels, Wagons, Carriages, Shafts, Poles, Neck Yokes, Single Trees, Barrel Hoops, Handles of every description. Spools, Bobbins, Insulator Pins, Chair and Table Legs, Balusters, Newel Posts, Golf and Hockey Sticks, Shoe Lasts, Gun Stocks, Oval Wood Dishes and for **General Woodwork**.


No. 15 Post Borer

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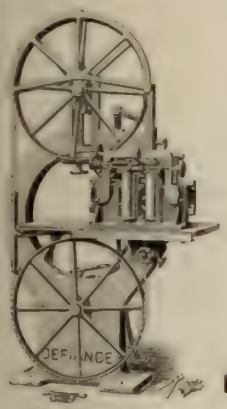
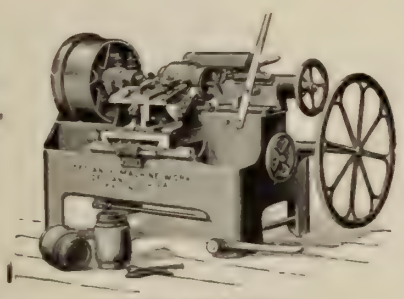
## The Defiance Machine Works,

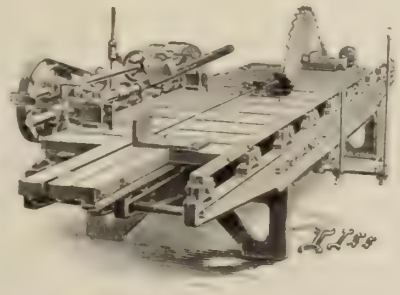
**Defiance, Ohio, U.S.A.**

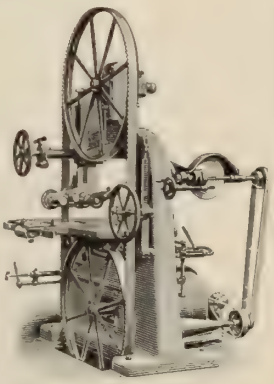
Ask for our new 535 page Catalog  Write for detailed Quotations

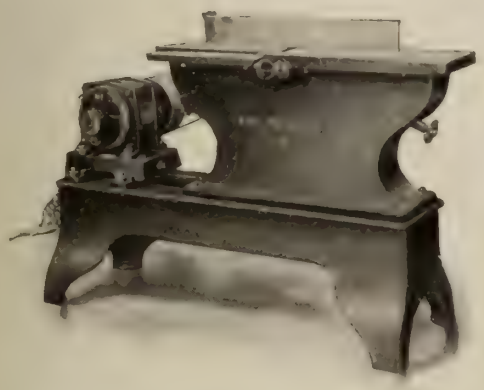


No. 6 Band Re-saw


No. 1 Hub Lathe


No. 6 Bolting Saw


No. 4 Band Rip Saw



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We equip them to your order with Square or Safety Cylinder, with or without Bench, and with or without Motor.

There is a **reason** why we ship so many of "The Porter" machines into Canada. They are **Quality** machines at **reasonable** prices.

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## C. O. Porter Machinery Co.,

**Grand Rapids, - Mich.**

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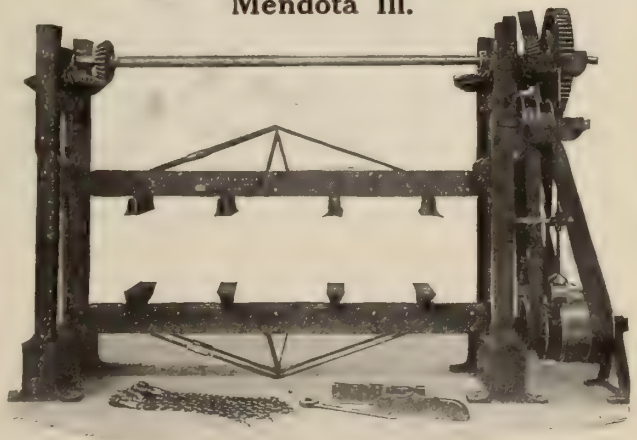
**Mendota Ill.**



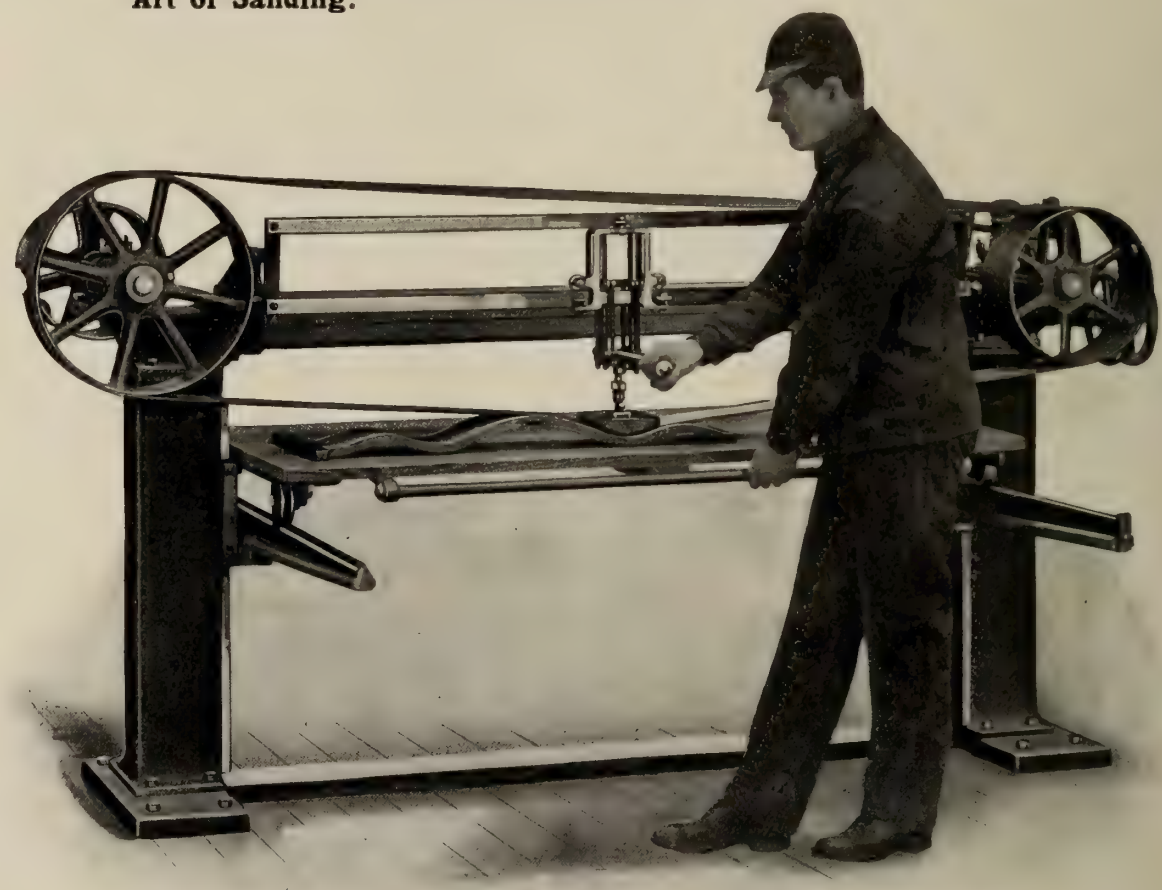
## A Veneer Press with a Reputation

We would like to give you particulars of this machine, because we can show you increased production and a better finished job. :: :: :: :: ::

**Better let us send you a folder about our Veneer Presses**

# Belt Sanders

Play an important part in Modern shop practice. The public demands **"smooth finish"** even in the cheaper lines of goods. What they demand they will get, if not from you then from your Competitor. You want the business and you can get it if you will only discard your old methods of "curry combing" your product and install our **Lucas Belt Sander.** This machine has revolutionized, simplified and perfected the **Art of Sanding.**



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## LUCAS-BELT SANDER

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Stands for 100% Efficiency

In Wood Tools

By "Efficiency" we refer not only the quality of the work done but also to the quantity. What we claim is that the Lucas Belt Sander on **flat surfaces** or **irregular shaped forms** is capable of turning out more strictly high-class work than any other belt sander you can buy. **Let us prove it to you.**

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# Canadian Woodworker

**Canada's Only Woodworking Paper**

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RICHARD PEARCE, Editor
Phone Main 5048
**111 Mail Building, Toronto, Canada**
United States: E. J. MACINTYRE, 4057 Perry St., Chicago.

SUBSCRIPTION RATE.

Canada, United States, $1.00; Great Britain, Australia and other countries 4s 6d., per year; other countries, $1.50. Advertising rates on request.

**Vol. 9** **April, 1911** **No. 4**


## Our New Editor-in-chief

With this issue we take much pleasure in introducing to our readers and advertisers Mr. Richard Pearce, who, on April 1st, 1911, became Editor-in-Chief of the "Canadian Woodworker." Mr. Pearce has, for the past thirty years, been a practical woodworker in all its various lines, as well as a special editorial contributor to trade papers of Canada and foreign countries. His knowledge of the trade and his vast experience in every detail of it should render the "Canadian Woodworker" of greater value than ever before to the proprietor, foreman and workers of every woodworking industry.

Richard Pearce
Editor of the Canadian Woodworker

Mr. Pearce started in the woodworking business in Toronto when a boy, and, wishing to find out how they were doing things in other parts of the country, moved to the United States. He spent some time in planing mills, furniture factories and other industries of like nature, and also spent some time in stove and machine pattern shops.

He is considered an expert on filing saws used for trim and picture frame work. Added to this is a knowledge of building matters, gleaned while engaged as a contractor.

For the last five years Mr. Pearce has been connected with Young & Company, of Toronto, builders and contractors, in the capacity of superintendent of the sash and door manufacturing department.

Mr. Pearce has done extensive writing for various technical papers, and it is possible that many of our readers are familiar with some of his writings.

At the present time he is preparing a series of articles on the "New Styles of Sash and Doors, and Their Construction," which will probably start in the May issue. These articles will be illustrated by Mr. Pearce's drawings, and should be of great interest to all our readers engaged in the manufacture of these lines of work.

Mr. Pearce proposes, in the course of his work, calling on members of the trade throughout Canada, being desirous of securing freer interchange of ideas on woodworking matters. He hopes, during the present month, to call on some of our friends in Ontario, and we hope he will have the co-operation of employer and employee wherever he calls. Any assistance which our readers can give Mr. Pearce will be appreciated by the "Canadian Woodworker."

## Neglect of Safety Guards

Many years ago the cry went up that the woodworking machine hand ran a great risk in his work. The number of men going around the country with fingers missing and in many cases the whole hand off or badly mutilated, bore silent but eloquent testimony to the grave danger.

Inventors hearing the cry, turned their attention to the matter, and succeeded in perfecting many excellent safety devices.

A great many employers, to protect their workmen, also as a precautionary measure against possible law suits for damages, have provided guards.

Strange to say, a large number of men who for various (alleged) reasons fail to make constant and proper use of these appliances.

We do not think anyone can give good and sufficient reasons as to why safety devices cannot be used on woodworking machinery.

It is true that in doing certain kinds of work on some machines, guards may be slightly in the way of the operator, but seldom so much so as to warrant their entire neglect.

We will use the jointer as an illustration only. The hand will often slip off a board, especially if it is

*Continued on page 12*

# Planing and Moulding

## Machine Hands who make Big Pay

In many planing mills and woodworking ships it is the custom of entrusting to the care of one man the entire charge of geting out all the material required for some particular job. For instance, the plans and details of a porch are handed the machine hand who begins by first making out a list of items wanted and with the help of a cheap man will pick out and machine everything.

With the exception, of course, of the wood turning, if any, and also perhaps the shaping all the wood such as planing and squaring up, cutting off to lengths, etc.

If any detail mouldings are required, he will, if they are to be done on the shaper, provide material for same. If a stockm moulding is to be used, he will give the quantities to the shipper, along with the flooring and rough stuff, such as joists, etc. This method of getting out material is rapidly coming into practice. It has been proven that it is not only a quick way of doing the work, but is cheaper also to the contractor.

In large plants, from eight to twenty men are employed at this class of work. They are highly trained and get the highest wages paid. Very few men of this class are seeking positions, as when times are slack they are kept on and the less experienced hand is laid off.

Read your woodworking paper and learn how to become a highly trained machine hand.

## The Forests of Labrador

Dr. Wilfred T. Grenfel read a paper on "Labrador" before the Royal Geographical Society recently. Referring to the timber prospects, he said that the immediate future of Labrador would depend largely on the possibilities of its timber for pulpwood. It was safe to say that, while there were areas in Labrador which under present circumstances could not be successfully worked for pulp, there were others that most certainly could. The policy of the Newfoundland Government in refusing to export the raw material appealed to him as a very wise one, for with pulpwood standing at $12 a cord, and almost unattainable even then in Wisconsin, he had every confidence that there were areas in Labrador that carried enough available timber to be worked successfully. The expense of milling was beyond his province, but Labrador possessed an almost inexhaustible water power, which in the future would undoubtedly be one of her chief economic assets. He sounded a warning to those thinking of investing in pulp speculations in Labrador. According to Mr. A. P. Low, while as far north as lat. 54 deg. the forests might be said to be practically continuous except on the highest hilltops, by lat 55 deg. half the country was treeless, while those that did exist had greatly decreased in size.

## Right Way to put on Spliced Leather Belts

The general opinion has always been that the correst way to put spliced belts on the pulley was to place them so that the splice or joint would run on the pulley side and against the splice on the outside of the belt. The inside can take care of itself, as the joint is kept smooth by the contact and pressure of the pulleys (especially is this the case where any belt dressing is used).) ) It is always the outside of a splice that opens up and causes trouble. In running over the pulleys the tendency is to open the splice on the outside and close it on the inside. After the thin edge once starts to open the air is forced under it (as it runs thin edge first on the outside) and it soon becomes detached. Instead splice belts should be run with the splice on the pulley side so as to offer no resistance to the air on the outside of the belt.

## Good Leather Belt Dressing

A good dressing for a leather belt is made as follows: Prepare tallow by boiling in water, so that the latter may take up the salt and dirt, which may be poured away, when cold. Re-melt the clean tallow, and when it is warm pour in cold oil in the proportion of 1 gallon to each 2 pounds of tallow, stirring until the mixture is cold. The oil must not be boiled, as that destroys its valuable qualities. Apply this dressing with a flat brush to both sides of the belt. A belt treated with this dressing will run slacker and "suck" the pulley better and transmit more power than a dry belt. A hard and dry belt may be restored to proper condition by a few applications of neatsfoot oil. Sometimes rosin is added, but its use is not recommended, as it gums the belt, causes it to crack, and prevents slipping for only a short time. If a belt which is properly cared for persists in slipping, a wider belt or larger pulleys should be used. Leather belting should be moistened occasionally with enough castor oil to keep in pliable and in condition.

## Injurious Insects

During the past season it became apparent, from reports received, that the spruce-bud worm had increased enormously and was threatening our forests. Happily it was ascertained that a parasite was preying on this insect and the entomologists assert that it is rapidly increasing in numbers. Cultivation of the parasite seems to be the only practical means of combatting the attacks of this insect, as it is out of the question to spray forests in the aggregate. Owing to the presence of the parasite we may reasonably expect that our forests will not suffer such damage as the larch saw-fly inflicted on the tamarac years ago. Further investigation showed that the deciduous forests were also suffering from the attacks of insects; the tussock moth was observed in the forests near Lake Megantic, the tent caterpillar north and northeast of Montreal, some leaf-rolling insect affecting the alders in the National Park and vicinity (name not ascertained), and the oaks, ash and elms in and around the city were observed to suffer considerably from lice on the leaves.

It must not be construed from these remarks that a sudden invasion of insects has taken place in this province. It is simply that more attention has been given to the matter lately owing to the advent in our midst of the spruce-bud worm. There is no reason, therefore, for being greatly alarmed, as it is likely the ento-

mologists will be able to affirm that in this latitude these destructive insects can have bue one brood during the season. The extreme temperature in winter, and the prolonged cold weather, militate against these insects spreading too rapidly or to too great an extent in our climate.

The law protecting insectivorous birds should be most rigidly enforced throughout the province, as they prey very largely on these forest destroying larvæ.

## New Woodworking Patents Granted

The following are patents granted which relate to woodworking industries:

131,579—A. J. Tenow, Stockholm, Sweden, machines for sawing timber. J. & C. G. Bolinders Mekanisja Perjstads, Aktiebolag.

131,616—J. O. Beasley, Santa Cruz, Cal., wheel guards and track cleaners for sawmill and carriages.

131,617—R. S. Benson, Riverside, Middleton street, George, County of Durham, Eng., machines for washing coal and other granular materials.

131,643—Pirgil T. Crabs, King, North Carolina, log turning devices.

## For Foreign Trade

The names and addresses of the following enquirers can be obtained by writing the Enquirers' Branch, Department of Trade and Commerce, Ottawa, or to the Editor of "Canadian Woodworker." When writing state number of enquiry:

376. Wooden handles of all kinds—One of the best known firms of manufacturers' agents in London, England, is anxious to establish connections with a few first class manufacturers of handles of various kinds. Splendid showroom facilities.

of wood—A Cartagena firm wishes to be placed in communication with Canadian exporters of the above articles.

385. Lumber—A firm of lumber importers in St. Vincent desires to hear from Canadian exporters of white pine, spruce, shingles, etc.

386. Lumber—An established firm in Barbados, now adding a lumber yard, requests correspondence from Canadia nexporters.

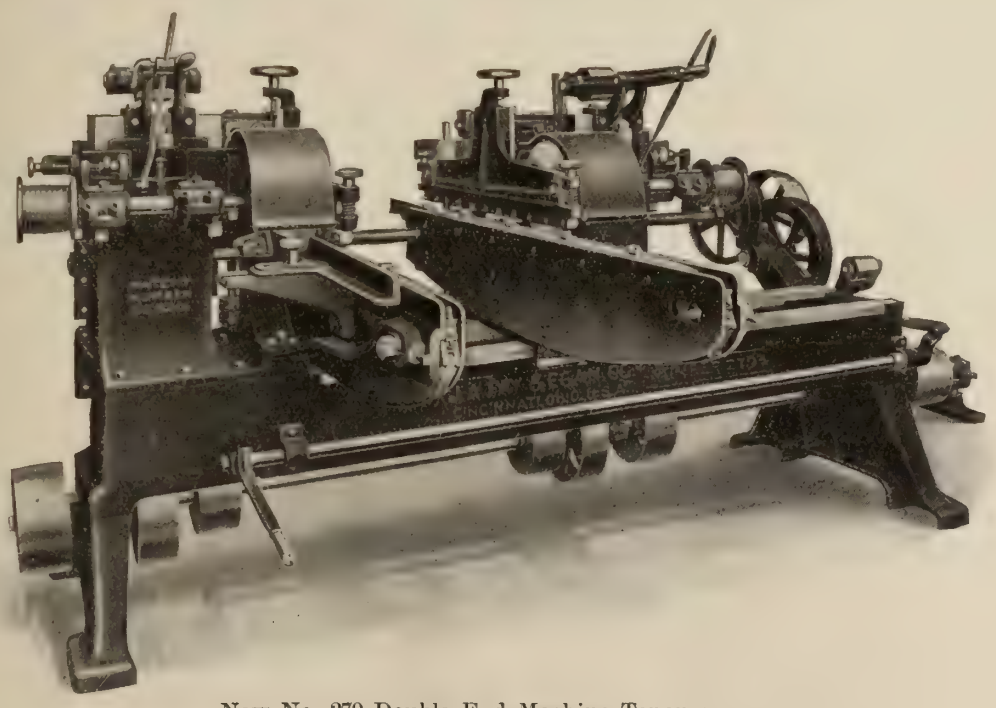
388. Furniture—A wholesale firm of general importers desires to be placed in communication with manutacturers and exporters of furniture, such as bentwood chairs, ordinary chairs, tables, setees, and other kinds of household furniture.

## A New Double-End Tenoner

After a careful investigation of double end tenoning machines now in use, the object being to ascertain from the operators themselves the reasons why none of these machines were entirely satisfactory, J. A. Fay & Egan Company has brought out a new model, designated as their No. 279. The accompanying illustration gives an idea of the general lines of the machine, and the following description of some of the new features of this machine will indicate what the manufacturers have accomplished in furtherance of their purpose to produce a perfect double end tenoner.

The base is substantially made and well proportioned to give rigidity to all working parts. One countershaft only is used, and this is placed under the base, out of the way of the operator. All spindles are driven from this one countershaft, instead of several countershafts being required to drive the saws, feed, etc.

The feed chains are composed of milled blocks, running on milled sprockets, preventing any tendency to slip, and overcoming excessive wear. These feed chains



New No. 279 Double End Machine Tenoner

380. Lumber—The largest ulmber importers in Cartagena wish to be placed in communication with Canadian exporters of same.

381. Shooks, laths, staves and other manufacturers

are accurately machined. They are constructed of small parts, which open when going around the sprockets, but close so tightly into one another when straightenel out as to appear to be a solid bar of steel.

The stock is not carried upon these chains, but rests upon the slides, and is carried along by the dogs on the chains. To insure absolute accuracy, these dogs are provided with micrometer set. The driving sprockets at the end of the feed chain-ways prevent the chains from lifting from the sprocket.

The pressure bar sections are close to the heads and directly over the line of stock support on the ways. This is an important feature, holding the stock very solidly while the cut is being made.

The moving column is operated by rack and pinion feed. This provides a very rapid, and at the same time, a very accurate adjustment. The moving column is gibbed to the front wall of the bed, and not across. This prevents springing of the bed. The cut-off saws are provided with micrometer cross-adjustment.

In addition to the above, this new model has the following general features: Cross adjustments to pressure bars; very heavy copy construction; gravity binder feed; accessible tenon heal belt binder on top of columnffi simultaneous or independent vertical adjustment of tenon heads; cut-off saw operates from above stock; crank wrench which is convenient to operator adjusts moving column; adjustable idler sprocket.

The machine is built to work stock from 4½ inches to 60-80, and 100 inches long by 20 or 33 inches wide.

You are invited by the manufacturers to write for full information. The proper address of the manufacturers is 153-173 west Front street, Cincinnati, Ohio.

## Circular Saw Hints

A saw just large enough to cut through a board will require less power than a larger saw, the number of teeth, speed and thickness being equal in each. The more teeth the more power, provided the thickness, speed and feed are equal. Three is a limit, however, or a point where a few teeth will not answer the place of a larger number. The thinner the saw the more teeth will be required to carry an equal amount of feed to each revolution of the saw, but always at the expense of power. In circular sawing the timber is often inclined to rise up at the back of the saw when pushed hard. The reason is that the back half of the saw, having an upward motion, has a tendency to lift and raise the piece being sawn, especially when it crowds between the saw and the fence, whilst the cut at the front of the saw has the opposite tendency of holding that part of the piece down. The hook or pitch of the saw teeth should be on a line from one-quarter to one-fifth for soft wood.

## Wood Imports of West Indies Increasing

The latest returns of wood importation show an increase—from £421,922 in 1908 the amount has risen to £460,947. More staves, shooks, puncheons and shingles were imported, whereas of pitch pine the amount remained about the same. Of items not under any special class, or under the general head of lumber, there was a considerable increase. Part under this head was hemlock and spruce, which would bring up the amount imported in the latter class even with last year, though in the loose method of preparing the returns a falling off is shown. It is probable the importation of Canadian lumber has remained the same for some years past.

Staves come in bundles sufficient in number to make one hogshead, about 30 to each bundle. The length is 44 inches, the width from 2¼ inches to 4¼inches. They are cut square at the ends; the stock is one full inch in thickness. Thirty-six superficial feet of lumber are required to make the sides of a hogshead. The puncheon head is 28 inches in diameter, and the hogshead head 36 inches.

The staves do not require to be kiln dried, but should be weather dried for a short time. It is not essential that the staves should be bent, as this can be done here just as well. Any Canadian firm, however, intending to go extensively into the manufacture of staves should attempt to bend the wood, as the expense in so doing would be but small. The staves received from the United States are generally bent and ready for use.

## Requirements for White Pine

To be merchantable, pine boards are required to be one inch in thickness, and of a width of from 6 to 10 inches, with not more than 1 inch of sap on one edge. A lower grade may have sap at both edges, but must not extend across the board, and spots must not go through. The dimensions should be the same as for best quality. Second quality boards may be narrower, down to 5 inches, but must have a clear face. All grades below are regarded as inferior. No planed boards are imported.

Lumber should be stencilled as to contents, otherwise a charge for surveying will have to be met, as required by the customs. Cargoes of pine to obtain tain good results for yieldage as well as quality, we best returns should be one-third merchantable and two-thirds second quality.

## Imports of Shingles into the West Indies

The quantity of shingles imported annually amounts in value to about £20,000. Of this about £13,000 is for spruce and cedar shingles from Canada, the balance being for cypress shingles from the United States and wallaba shingles from Demerara. The price of cypress and wallaba is much higher than the Canadian shingle, selling here for from $4 to $6 a thousand, or rather more than double the price of the Canadian. The wallaba is a split shingle, thicker and heavier in weight, and partly for these reasons has a certain demand in the market. The fact that more expensive shingles can find sale up to nearly £7,000 a year should be of interest to Canadian manufacturers, as no doubt advantage might be taken of it in using more expensive woods in the manufacture of shingles to compete with those made of cypress and wallaba.

## Neglect of Safety Guard

Continued from page 9

wet or icy, warped stock is also difficult to handle, but the operator is quite safe with the guard over the knives.

We are fully convinced that many accidents have been prevented by the careful and correct use of safety appliances. Still, the fact remains that many men working at the most dangerous machines, cannot be persuaded to use the guards. They will tell you in a lofty and confident air that they have never lost any fingers (so far), and don't expect to, but the unexpected will happen and when such a man gets nipped the general verdict is contributory negligence.

## Box Makers Busy

The Firstbrook Box Co., Toronto, report business as good. Are running full time with full staff.

# The Builder

## A Few Calls Made Amongst the Builders

The new editor of the "Canadian Woodworker" had the pleasure recently of interviewing some of the contractors and planing mill owners in Toronto, and was pleased to find that without a single exception all spoke in the most hopeful way regarding the season's trade

**The Rathbone Company, Limited, Northcote Avenue, Toronto.**

This firm are busy and see a good season ahead. They handle everything in the building line, their specialty being detail work in veneered doors and trim, hardwood flooring, etc.

**The Richard Dinnis Company, Limited, William St., Toronto.**

The above named firm enjoy the distinction of having handled the largest building contracts in Toronto.

Their factory equipment enables them to manufacture all the woodwork required in the building line. A very prosperous season is predicted by this company.

**The L. A. Delaplante Company, Limited, Marie St. ..**

This company have increased the capacity at there plant and have a fine assortment of pine doors made up in various styles. They also make a specialty of detail work, such as moulding and interior fittings.

**The John C. Gilchrist Co., Ernest Ave.**

This company are erecting a large addition to their premises, to be used principally as a stock and show room. They have a splendid equipment for the turning out of the better class of detail work. They also do a large trade in bill stuff.

**The Simpson Planing Mill (foot of Spadina Ave.)**

This firm has one of the finest situations in the city for the handling of large quantities of planing and resaw work; also sticking and matching, both hardwood and pine flooring.

**Wm. Williamson, Queen St. and Woodbine Ave.**

Mr. Williamson does a large planing mill business and is also a contractor. He sees a busy summer ahead in his district.

**Boake Manufacturing Company, Limited, Toronto.**

They handle everything in lumber and timber for house and factory construction. They also handle a large quantity of square timbers, Georgia pine and Douglas fir. Their steel crane, steam driven, makes their shipping facilities easy. They see a busy summer ahead.

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## Geometrical Problems of Use to Planing Mill Men and Builders

(Continued from March Issue)

Fig. 26 shows how to lay off rafters by using the steel square. Take a building 6 feet wide with a gable roof, half of the width of the building will be 3 feet; in a half pitch roof the height from the peak of the rafters to the plate will be half the width of the building plus the distance from the outside of the plate on a plumb line of the building. Draw the plumb line, and of the rafters. The roof being half pitch, which is 12 inches rise to every 12 inches of run, then by taking 12 inches on the tongue and 12 inches on the blade of the square, the distance across the corner from 12 to 12 wiuld be the length of the rafter for one foot run. In fig. 26, where half of the building is 3 feet wide, by taking the square three times, os shown, from 12 to 12, you have the length of the rafter to the outside plumb line of the building. Draw the plumb line, and measure down from the top of the rafter the distance that you want the rafter to project above the roof. If the pitch of the roof is one-third, the square can be used in the same way by taking the rise in inches on the tongue of the square, which in a one-third pitch roof is 8 inches, and the run on the back of the square, whic his 12 inches, and you will have the plumb and level cut of the rafter; along the 8-inch side for the plumb and along the 12-inch for the level cut. Any length rafter can be found in this way by the use of the square.

Fig. 27. To find the Length of a Rafter.—Let a-d be half the width of the building, then for a half-pitch roof d-c, the rise must equal a-d and a line drawn from a to c will be the length of the common rafter. This drawing should be made to a scale of at least one inch to the foot, then measurements can be taken from the drawing nearly correct. Take your compass and, with a as a centre and a-c as a radius, describe an arc as from E to F until it intersects with the extended line a-d. Draw a perpendicular from f until it intersects with the extended line b-c at i. Draw a line from a to i which will be the length of the hip rafter for a half-pitch roof. Suppose the distance from a to d was 13 feet and the pitch one-third, then the rise would be 8 times 13 inches, or 8 feet 8 inches rise to g. Draw a line from a to g and you will have the length of a common rafter for a third pitch roof. With a as a centre and a-g as a radius, describe the arc g-e until it intersects with the line a-f. Draw a perpendicular from e to h, which is the same distance as from a to d or half the width of the building. Draw a line from a to h, which will be the length of a hip or valley rafter from a third pitch roof. Any other pitch can be found in the same way. By dividing the line i-f into parts equal to the distance that the jack rafters are to be apart, and drawing parallel lines with the line a-f at each space, mark from i-f until it intersects with the line a-i, the length of these short lines will give you the length of the jack rafters.

Fig. 28 is part of a plan of a roof showing the lay of the rafters.

Fig. 29 shows how to lay out jack rafters, such as are shown in fig. 28, betwee nthe hip and valley rafters. This jack is marked for a half-pitch roof. In a half-pitch roof the hip and valley rafters do not form a 45-degree or half pitch, but, as shown in fig. 27, where a-f equals the length of the common rafter, f-i equals half of the width of the building and a-i the length of the hip or valley rafter. After the rafters are in place they form an angle as shown, and in order to have the top of the jack rafter fit against the hip or valley, they must be cut to this angle for the top cut; the plumb cut must be the same as the pitch of the roof as the jack rafters always have the same pitch as the common rafters. We find that 8½ inches and 12 inches on the

square will make the cut for the angle a-i-f or a half pitch roof. This is found by taking 12 inches on the blade of the square and making it even with the point at a: lay the square straight with the line a-i for a half pitch roof. Where the tongue intersects with the line a-f will give you the inch mark, which we find is 8½ inches. Lay the square on the top edge of the timber for the rafter, as shown, making the figure 12 and 8½ even with the edge of the timber. The line a-b will be for the top cut. Lay the timber on the side as shown. From the point b as shown by the dotted line, draw the plumb line which in a half-pitch roof is 12 inches and 12 inches. The bottom cut at c-d is cut in the same way when jacks are run from the valley to the hip rafters, but where they rest on the plate they are cut the same as for a common rafter.

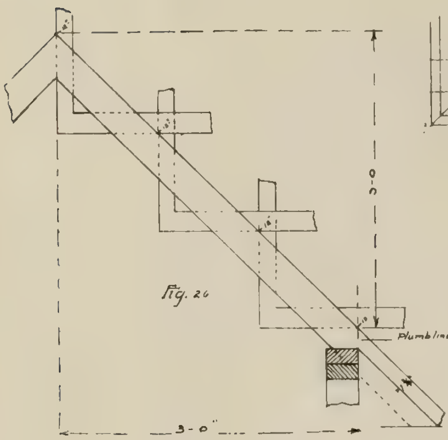
Fig. 30, at a, b, c, d, shows the end cut of a jack as described in fig. 29, a-b being the top of the rafter and b-c the side or plumb cut.

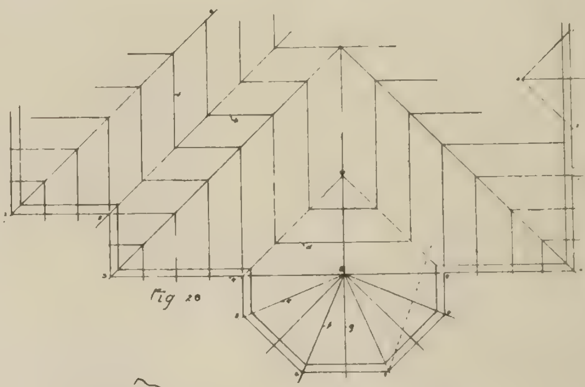
Fig. 31 shows the starting point or where to commence measuring a rafter. The starting point must always be on a plumb line with the outside of the building, as shown by the dotted line. The line parallel with the top of the plate is called the level line. The pitch of the roof, as shown in fig. 31, is 11 inches rise to the foott, as shown by the figure on the square, 11 inches on the plumb line and 12 inches on the level line.

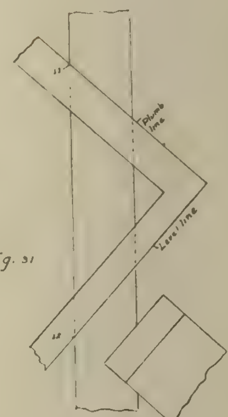
Fig. 32 gives a table giving length of common, hip, valley, jack and octagon rafters, according to the rise, for a one foot run. The rise is marked in inches in the first column for a 12-inch run as shown. The second column, giving the pitch of the roof. A 4-inch rise in 12-inch run, is called a 1/6 pitch, 5-inch rise, 5/24 pitch, 6-inch rise, ¼ pitch, 8-inch rise, ⅓ pitch, 12-inch rise, ½ pitch, etc. In a 12-inch rise the rise is the same as the run, making a 45-degree angle or a half pitch roof, being one-half the width of the building In a third pitch the rise is 8 inches to the foot. If the building were 24 inches wide with a gable roof and the rise 8 inches, the rise would be one-third of the width of the building, or one-third pitch. The column marked common rafters gives the length of a rafter for each foot of run; a building 16 feet wide and a half pitch roof will then require 8 times the number given opposite the rise or pitch that the roof is to be, which is 8 times 16.97 inches, or 11.31 feet, the length of the common rafter. A third pitch roof for the same building, takes 8 times 14.42 inches. For a hip or valley rafter, take the figures in the fourth column and multiply the same as for the common rafter by half the width of the building. The column marked octagon rafters gives the length of an octagon as shown in figure 28 as E5, E6, E7 and E8. If the octagon were 12 feet wide and a half pitch roof, the length of the rafter will be 6 times 17.69 or 106.14 inches, which is 8 feet 10⅛ inches, the length of E5, etc. The length of the rafters between the octagon hips will be found in the same way as for a common rafter. The column marked out for octagon rafters, the first number will be for the level line and the second for the plumb cut. In a half pitch roof the cut will be 13 and 12, a third pitch roof 13 and 8 ,the second number always being the same as the

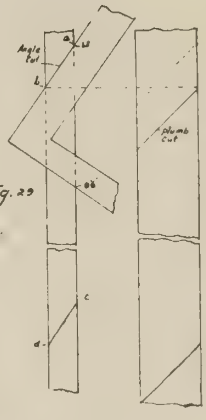
(continued on page 19)

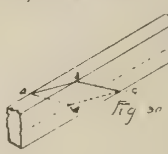
## TO FIND THE LENGTH OF RAFTERS

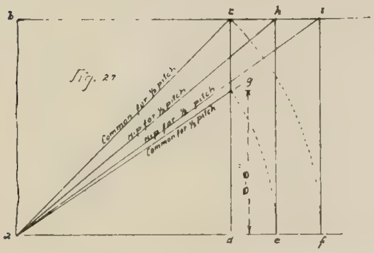


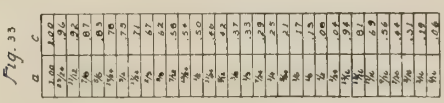




Fig. 32

| No. of in. Rise to the foot. | Pitch | Common Rafters | Hip and Valley Rafters | Octagon Rafters | Cut for Octagon Rafters | Cut for Jack Rafters | Jacks, 12 in. centers | Jacks, 16 in. centers | Cut for Common Rafters |
|---|---|---|---|---|---|---|---|---|---|
| | | in | in | in | in. | in | in | in | in |
| 18 | ¾ | 21 63 | 24 72 | 22 20 | 13–18 | 12– 6⅘ | 21 63 | 28 84 | 12–18 |
| 17 | 17/24 | 20 81 | 24 0 | 21 40 | 13–17 | 12– 7 | 20 81 | 27.74 | 12 17 |
| 16 | ⅔ | 20 0 | 23 31 | 20 62 | 13–16 | 12– 7¼ | 20 0 | 26 66 | 12 16 |
| 15 | ⅝ | 19 21 | 22 64 | 19 85 | 13–15 | 12– 7½ | 19 21 | 21 61 | 12–15 |
| 14 | 7/12 | 18 44 | 21 99 | 19 11 | 13–14 | 12– 7¾ | 18 44 | 24 57 | 12–14 |
| 13 | 13/24 | 17 69 | 21 37 | 18 38 | 13–13 | 12– 8⅛ | 17 69 | 23 38 | 12–13 |
| 12 | ½ | 16 97 | 20 78 | 17 69 | 13–12 | 12– 8½ | 16 97 | 22 63 | 12–12 |
| 11 | 11/24 | 16 28 | 20 22 | 17 03 | 13–11 | 12– 8¾ | 16 28 | 21 71 | 12–11 |
| 10 | 5/12 | 15 62 | 19 69 | 16 40 | 13–10 | 12– 9¼ | 15 62 | 20 82 | 12–10 |
| 9 | ⅜ | 15 00 | 19 21 | 15 81 | 13– 9 | 12– 9⅝ | 15 00 | 20 0 | 12– 9 |
| 8 | ⅓ | 14 42 | 18.76 | 15.26 | 13– 8 | 12–10 | 14 42 | 19 22 | 12– 8 |
| 7 | 7/24 | 13.89 | 18 36 | 14.76 | 13– 7 | 12–10⅜ | 13 89 | 18 50 | 12– 7 |
| 6 | ¼ | 13.42 | 18 00 | 14.32 | 13– 6 | 12–10¾ | 13 42 | 17 89 | 12– 6 |
| 5 | 5/24 | 13 00 | 17.69 | 13 93 | 13– 5 | 12–11⅛ | 13. 0 | 17 33 | 12– 5 |
| 4 | ⅙ | 12 65 | 17 43 | 13.60 | 13– 4 | 12–11⅜ | 12.65 | 16 81 | 12– 4 |

Table giving the length of common, hip, octagon, valley and jack rafters.

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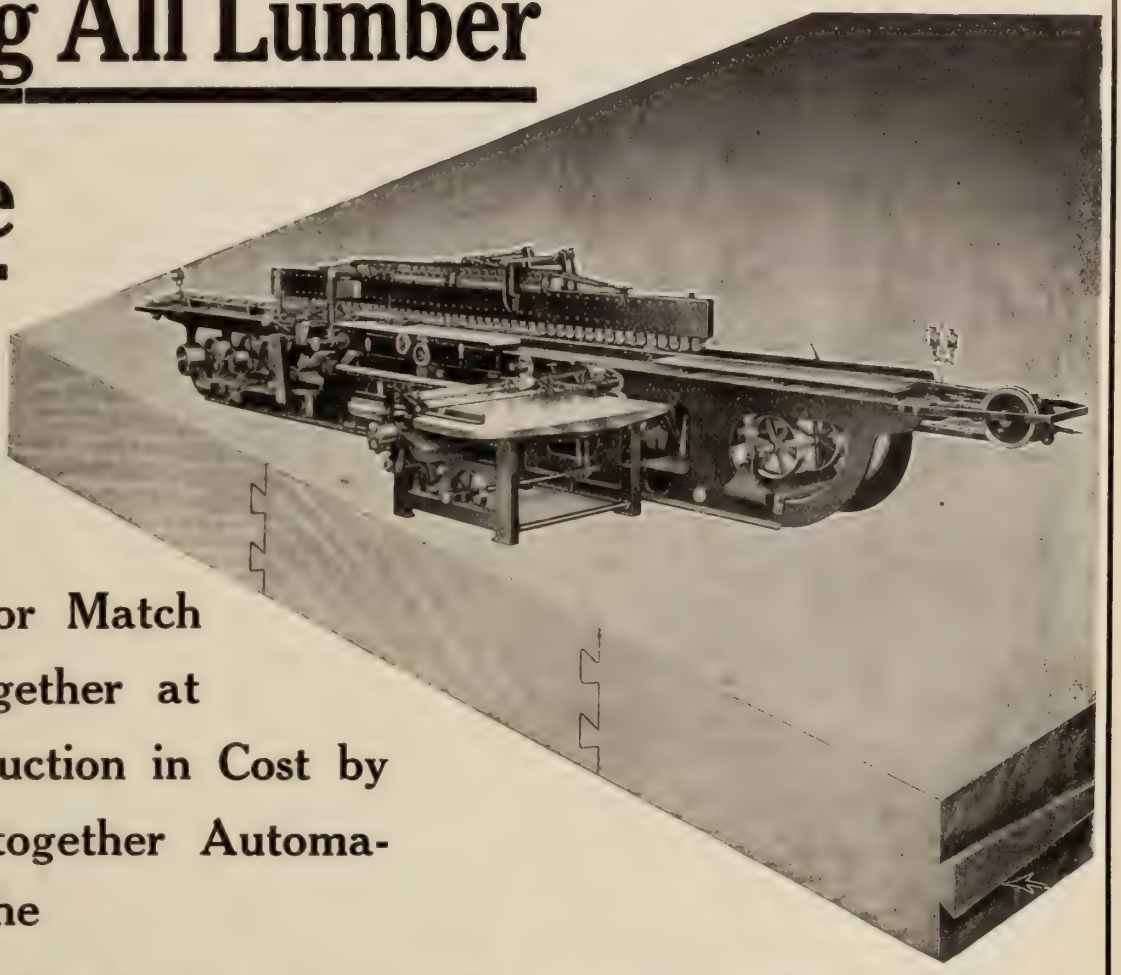

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# Furniture and Veneers

## Wood Staining and Material Used

A. Ashman Kelly

When preparing water stain for any kind of wood, first let it be understood that while the aniline dyes are very beautiful to the eye when applied and the work finished, yet they lack in permanence. Much more desirable in this respect are the vegetable and mineral stains or pigments, although they are not quite so clear as the anilines.

I mention this fact for the benefit of those who may desire their work to look well not only at the start but at the end of several years. Earth pigments, such as sienna, raw and burnt, umber, raw and burnt, Vandyke brown, etc., are sufficiently clear when finely ground to make very good stains, indeed they wehe the principal stains used before the advent of the aniline dyes. Uumber does for walnut, burnt sienna for cherry, and with rose lake it does for mahogany, and sienna for oak, and so on.

### Grinding the Pigments.

But these pigments should be ground butter-fine, as the color grinders call it, and not only this but be floated too. You never can get a mineral color really fine by grinding, but by floating it in water as they do with whiting the utmost degree of fineness can be secured. The pigment should be the richest that it is possible to get.

It is not generally known, important as is the fact, that in order to make the water stain most effective we should add to it a little acid or ammonia as the case in hand may need. This will enable the stain to penetrate the wood much better. Water stain, as has been pointed out before, has the bad fault of raising the grain of the wood and the addition of ammonia or acid makes this even worse. Fortunately this can be rectified by adding a little turpentine to the stain, keeping the stain stirred while at work, because the turpentine and ammonia or acid do not remain mixed very long.

### The Use of Alum.

The addition of powdered alum, a pound to the gallon of water, has been recommended as a wash previous to the staining, to harden the wood, or the alum may be added to the stain if there is nothing in the stain to interfere with the alum or the alum with it. Usually, however, a clear water brushed over the wood, being then allowed to dry, will raise the grain, which may then be lightly sanded off. This process may be repeated. Of course, this adds to the cost of a job, and if that is a factor then we must take the whiskers as they rise and let it go at that. It is to be regretted that water does raise the grain of wood in staining. It is a better medium in all other respects than anything else we can use.

It is easy now to buy stains for all kinds of finishing, the manufacturers having made a study of the whole subject and in the laboratory and experimental rooms they have perfected the art to a remarkable degree, so that by using a particular stain and following the directions that go with it, it is easy to produce any desired stain effect that one may wish. True, it costs more to buy when you have to use large quantities of stain, and in this case I do not advise buying as a rule. The furniture maker, for instance, who has not a competent foreman to mix stains will doubtless find it economy to buy exactly what he wants.

The finisher should know how, and he will if he is wise. Every wood-finisher should know all about the art of preparing stains as well as about every other part of his work. In this way he will make his services more valuable to his employer. It often happens, particularly in house wood-finishing, that a particular or special stain effect must be made to meet the requirements of the architect. In this case it is, of course, necessary that the finisher should know his art perfectly. One might send to the stain-maker for the desired stain, but this is not the best way. The preparing of the stains is one of the most particular parts of the art.

### Source of Stains.

Stains for application to woods, hard and soft, are obtained from vegetable and mineral pigments and from the anilines. It is essential in wood-staining that the stain be transparent, otherwise the effect will be clouded more or less. Vandyke brown is the most transparent of its class and is of bituminous origin. Sienna is somewhat less transparent but is upon the whole quite satisfactory. The vegetable stains are also of satisfactory transparency for staining. The aniline stains are very transparent, giving the very finest effects possible, besides which they are capable of producing a greater variety of color effects than all other stains together.

### Oil and Turpentine.

The earth or mineral stains are mixed with oil and turpentine, or with both combined, according to the character of the work under way. Oil stain is useful only on soft woods, such as poplar and white pine, as the oil will not penetrate other woods well, while water stains on soft woods will give a more or less cloudy effect owing to the rapid absorption of the water by the porous wood. Oil stain can be spread out at more leisure and will give an even coloring. Water stain pentrates deeply into the wood fibre, filling it with color, and so making a substantial coloring. This is true also of spirit stains. Oil stains are made from Vandyke brown, sienna, etc.

Water stain will give the most natural color effect of any, and the addition of a little glycerine will minimize the raising of the grain to which we have already referred. Water being very cheap, it is to be preferred when it can be used, and a water stain should always be applied warm if that is possible. Water stain made with vegetable or earth pigment and applied hot or at least warm, not belof 100 degrees Fahr., will hold its color almost indefinitely, while aniline stain will fade in a short time in the light and in the strong sunlight it will go quicker and appear patchy, especially when it has not been applied very evenly.

Spirit stain will also raise the fibre of the wood and will penetrate quite as well as water stain and with as great a depth of coloring. Water stain is not slow in drying, but spirit or alcohol stain is, of course, much quicker, so that shellacking may be done almost immediately after the spirit staining. There is really no other advantage to be obtained by the use of an alco-

hol stain than this excepting where water will not dissolve the dye, and spirits must be employed. Besides which, water is cheap and alcohol is rather costly. To minimize the raising of the grain by the alcohol stain the same means may be employed as with water, either wet and rub off the wood before staining, or add a trifle of glycerine or castor oil to it. Care must be observed not to get too much of these non-drying substances in it, for they would prove injurious to the finish, especially to the varnish.

### Applying the Stain.

To apply either water or alcohol stain use a sponge, preferably, as it is the best way of any, though the cement-set bristle brush will be found the most convenient tool. Just as soon as the surface of the object has been stained proceed at once to wipe off with a soft cloth. If the stain effect is not deep or dark enough, repeat the staining and wiping off. In this way one may secure either very light or quite dark from the one stain. You can stain the object and allow it a little time to soak in, then wipe off, or repeat the applications, just according to the degree of color depth required. It is apparent that when we rub off immediately after coating the object the stain will not have had time to penetrate the wood and hence we shall get a very light effect. But the penetration is much quicker with water and spirit than with oil, hence the oil stain may be allowed more time before wiping off. Again, if we apply one coat and let it dry, then apply a second coat, hubbing out in both cases, we shall get a better job, but the first stain coat must be lightly sandpapered to remove nibs or other roughness and then the second coat of stain will darken up any light places made by the sanding and will also give an added depth of color to the work.

We may set a stain color just as the textile dyers do by using a mordant. Alum and green copperas will do the work, one-half pound to the gallon of warm water. This solution must be applied to the stained wood after it has dried and before the sandpapering. In some formulas alum is included and this tends to fixing the color also.

### Stains with Acids or Alkalis.

In addition to the usual water and alcohol stains, which are mineral or vegetable stains, we have the stains made with an acid or alkali, these being used the same way with the exception that they do not require a second coat. Acid and alkali stain will act successfully only on a wood containing tannin, as in the case of oak. If an alkali is strong enough, however, it will burn the wood so as to produce a stain effect, but this is not what we look for in such a stain. The acid and alkali stains are made mostly from chromate and bichromate of potash, green copperas, sal and caustic soda, potash or pearl ash, ammonia, lime, picric and sulphuric acid. Alum and vinegar may also be included. Picric acid gives a yellow tone. Chromate and bichromate are used in getting a golden effect on oak and to deepen mahogany. The other caustics, lime, soda, etc., darken the color of woods while copperas will set the color, and alum and vinegar will neutralize the alkali and acids after they have done their work in the staining.

Fuming is really an ammonia-staining process whereby the alkali attacks the wood by its fumes only instead of acting directly through contact in the more or less diluted form of its liquid. Fuming will not raise the grain of the wood and wherever practicable it is superior to the direct application method. It is useful particularly for obtaining the Flemich oak effect that is so much in popular favor.

### Oil Stains.

Oil stains are seldom used in the finishing room and this for various reasons, chief of which is that they do not give a good clear effect. As previously stated, they will do on soft woods very well but on hard woods they do not go down deep enough, besides which they darken with time and act badly under varnish unless coated wit hshellac before the varnish is applied. Oil stains may be prepared from asphaltum, giving a good dark oak effect, and with japan, thinning with benzine or turpentine. Ashphaltum and Vandyke brown together, in oil stain, will give a very good antique and golden oak effect and the same is useful on mahogany also. Asphaltum is a poor drier and remains soft always, even after the stain is dry. For this reason it is not quite as useful as we might wish, though it certainly does give a richness of color that we fail to get by any other means. But there are various grades of asphaltum and if you get the finest the trouble will be less. It is also said by some that it can be prepared so that no gum will remain to affect the finish. Whether this is merely factory talk or not I cannot say. But certain it is that if we use asphaltum in stain it should be the very best.

Carbonate of soda and chromate and bichromate of potash are the best of the kind for darkening woods. The solution may be made by adding one pound of the alkali to one quart of boiling water, afterwards diluting this to secure the desired color tone. Saturate the surface of the work with the stain, then rub off with a rag. The best tool for applying the stain is a sponge or a flannel rag, and after rubbing off with another rag wipe dry. The carbonate of soda is used on dark woods.

### Transparent Effects.

The best transparent effects are obtained by the use of two or more light applications of water stain. But with acid or alkali stain it is seldom well to give more than one coat. A strong solution of oxalic acid is sometimes used on oak to darken it. For mahogany, use diluted nitric acid. Permanganate of potash gives a good brown stain. Ammonia gives a rich olive brown stain effect to oak. A copperas water stain gives a beautiful green-gray color to maple Dragon's-blood, two ounces to the quart of alcohol, will give a fine mahogany stain. A darker effect may be had by boiling one-half pound of madder and two ounces of logwood chips in one gallon of water, used hot. When this is dry, apply a solution of two ounces of potash in one quart of water.

### Treatment of Light Woods.

White pine free from rosin or sap may be treated with a wash of nitric acid, one part to ten parts of water, and if the work is well done the effect will be like mahogany. Let the stain dry, then shellac it. By glazing the above with carmine lake you will have a rosewood effect. Speaking of white wood, a very fine cedar effect may be obtained by mixing together two parts of catechu and one part of caustic soda in 100 parts (all by weight) of water, and applying it boiling hot. If the object were small enough we would get a much better effect by boiling it in the stain. But this is hardly practicable and we may improve the work by a second application. This stain sinks in very deep, so that in the case of staining veneers we may be sure that it will go clear through.

A beautiful brown stain is made with one pound of Pandyke brown in one gallon of water, boiling this until the volume is reduced by one-third. Now mix up two ounces, Troy weight, of potash with water sufficient to dissolve it, then mix this with the stain. Give

two or more coats, according to depth of color required. Another method is this: Boil one part of catechu with 30 parts of water, and add a little carbonate of sola. Give a coat of this, let it dry, then give a coat of solution made from 1 part of bichromate of potash and 30 parts of water. It hardly needs be added that various shades of color may be had by handling the stain properly or by varying the strength of the solution. This will be discovered in practice.

**Brightening the Stain.**

Another little kink in the wood stainer's art is brightening the stain by applying this mixture: Nitric acid, 1 ounce; muriatic acid, ½ teaspoonful; grain tin, ¼ ounce, and rain or other soft water, 2 ounces. Put the ingredients in a bottle, shake together, and do not use for two days. Keep the bottle well corked. The way to keep stains is in well-stoppered bottles or other suitable vessels. Add a few drops of carbolic acid or creosote to prevent mould.

Another kink concerns the staining of the hands, which is quite a serious matter where one cares to have his hands look clean when off duty. One way is to coat the hands with shellac or with varnish before going to work. What do you think of that scheme? Well, some do it, but not I. After the day's work the hands are washed with turpentine or alcohol to take off the protective coating, then with soap and water, to make the hands quite clean. Aniline dye stains may be removed with alcohol. As for the other stains, we should prefer removing them with soap and water, using a sand or pumics soap such as sapolio or bon ami.

**Dyeing Wood Clear Through.**

Dyeing wood is different from staining, of course. In the latter case we seek merely to color the surface, while in the dyeing we undertake to saturate the wood clear through. This is useful where veneers are to be colored. Pear, holly and beach are the best woods for dyeing black or ebony. The wood should be freshly cut and of young growth to give the best results. The veneers are allowed to lie in water for several days to draw out certain matters that if allowed to remain would act against the dyeing. Then they should be allowed to dry in the open air for a day. Air-drying is always best for veneers. After the first bath in the stain a second would be well. A fine black dye is made from logwood chips boiled in the copper with the veneers. After the first bath in the stain a second would be well. A fine black dye is made from logwood chips boiled in the copper with the veneers, boiling slowly for three hours, then add one-twelfth as much powdered verdigris as logwood, and half as much bruised gallnuts as verdigris. As the water boils away, fill up the vessel with vinegar and boil slowly until the wood is dyed through.

Some woods are enhanced in beauty by staining while others do better if finished au naturel, two of these being maple and sycamore or buttonwood as it is commonly known. The latter wood has a very beautiful and interesting grain which stain would utterly destroy. Quarter-sawed sycamore is especially fine and a white or very pale shellac should be used. Certain chemical changes will occur in the wood that will still further add to the beauty of the coloring.

**Finishing Maple.**

Maple rarely is stain, though I have told in this article how it may be given a fine green-gray color with copperas water. If finished to preserve its natural color as nearly as possible the finish will usually be most satisfactory. For this purpose we use white or bleached shellac varnish. Two coats of this, rubbed smooth with fine sandpaper, followed with rubbing and finishing varnish, is in brief the finishing required. The tendency for the past two or three years has been to finish hardwood lighter than was previously the custom, and this no doubt is wedd, as light finishing gives the natural effect better than any dark coloring will do. The latter is, of course, to simulate old age, but now, with humans and certainly with women, the idea is to keep near the border line of youth, away from old age as far as possible.

## Geomatrical Problems

(Continued from page 14)

rise to the foot. The column marked cut for jack rafters gives the cut along the hip or valley for jacks as marked in fig. 29.

The column marked jacks, 12-inch centres is the length of a jack for each foot of run. In fig. 28 find the length of the jacks between the valley No. 2 and hip No. 3. If the distance from the corner to the angle were 4 feet, the full length jacks will be four times the number opposite the rise or pitch of the roof, as for a third pitch roof it will be 4 times 14.42 inches. Column marked for jacks, 16-inch centres shows the length of a jack when spaced 16 inches apart. If the rafters were spaced 16-inch centres in fig. 28 from the corner 3 to 4, the first jack would be 16 inches from the corner, and in a half-pitch roof would be 22.63 inches long, the second one from the corner would be two times 22.63 inches and the third one three times, etc. The column marked out for common rafters shows the plumb and level cuts for common rafters, 12 inches being the level cut and the second number the plumb cut. When cutting jack rafters as for hip Nos. 1 and 10, fig. 28, the top end of the rafters must be cut in pairs, one for each side of the hip.

Fig. 33 gives a table showing the same equivalent of a common fraction and decimal fraction23/24 equals. 96, 11/12 equals .92, etc.

## Raw Material Advancing

Raw material for all veneer lines are creeping up from year to year, and notwithstanding this fact, manufacturers are having difficulty in securing the prices they should on finished lines. In fruit and vegetable crates there is the increased cost of lumber and labor to contend with; in the cabinet line there is the great scarcity of mahogany and other fine woods, and the resultant high prices for these materials. In the former line, labor saving machinery and the latest improved devices for the automatic production of berry boxes and similar packages have cut down the cost of operating somewhat, but in the cabinet wood line there is not much to be saved in this direction and as a result one hears more and more complaint in regard to prices realized on finished stock. If our local manufacturers were of one accord in regard to this matter and were not afraid to move, fearing what competitors would do, prices on fine wood veneers would be on the level that they really should be.

## A Good Method of Finishing Furniture

The method employed now in hardwood finishing is quite different from what it used to be, even what it used to be twenty years ago, and that is not a long time. The whole system of finishing seems to have been revolutionized as it were. Finishing, to-day, is an exact system, no guess work about it. The following method may be accepted as being the best adapted to factories east and west, making due allowance for

accidents, which will occur now and then. The first thing to do is to sandpaper the wood well in order to get a level and smooth surface for these conditions have a bearing on the finish. Keep your work smooth from the very beginning, and it will end smooth, no doubt at all. Fill with a good silex filler, using from eight to ten pounds to the gallon, according to the coarseness of the wood. Allow the filler at least forty-eight hours in which to harden.

Apply a coat of surfacer—good coat of good surfacer, not a 50-cent surfacer, but one containing a good grade of gum varnish, adding to it one pound of finely pulverized and floated silex to each gallon of surfacer. Let this coat stand 48 hours—good deal of time to allow, sure enough, but then it will pay in the long run, and it certainly does allow the surfacer to harden properly. Sandpaper this coat down as close as possible, dust off, then apply a good rubbing or "church pew" varnish. This coat may be flowed on freely, and be rubbed to a dead or egg-shell gloss.

## Liquid versus Solid Glue

When knocking about the country I have been interested in noting the attitude of the various woodworking plants in the treatment of glue and in their general selection of adhesives. I find a good many small cabinet shops, pattern shops and repair shops that swear by liquid glue and claim it is superior to a solid glue.

In one of these plants the old glue pot formerly used for solid glue was installed and an examination of it showed that the water surrounding the glue pot was boiled by a jet of steam. The man in charge said with a sadly mistaken air of pride that they "used to keep the steam going all the while and have the water as hot as they could get it."

You can imagine how the glue man familiar with the proper treatment of glue would feel when told that this was the way his product had been treated. The owner of that plant had already declared that solid glue could not begin to make as strong a joint as liquid. When his method of treating the solid glue was understood, I could not help but agree with him, providing all the solid glue was to be maltreated according to his own recipe.

Everyone familiar with adhesives knows that as soon as glue has absorbed its full amount of cold water during soaking and is introduced into the glue-pot, and heated, the strength begins to fall off from the moment it comes to the proper consistency, and that glue can be ruined by holding it for several days at the proper temperature for spreading. This result is because the prolonged cooking breaks down the structure of the glue, introducing water into the glue molecules, thus lowering the grade of the material, and making it similar to the cheaper grades.

One of the most successful woodworking plants I know in the country makes it a rule to soak the glue in cold water and bring it to a jelly at the lowest possible temperature. This jelly is then poured out in pans to cool and is afterwards cut into strips and distributed to the men as it is required. Each man is instructed to make up fresh glue at least twice a day. On certain classes of work he does it oftener. The glue pots are thoroughly cleaned before new glue is introduced.

This may look like foolish work but the firm has a reputation for gluing joints that never come apart, and is able to command a price for its product much above fully handled will give good results. I know of several pattern shops which use liquid glue in their work entirely and I have seen a furniture shop in which large quantities of this adhesive were employed. But the solution made from solid glue could be even better than it is if the same character of care and skill were put into it as in the other branches of machine woodworking. The fitting of the wood joint is surely no more important than the preparation and applicatio nof the glue that holds it together.

## Soon Ready to Open

The machinery for the new planing factory of Messrs. Galbraith, Bumstead & Company, at Owen Sound, arrived from Chatsworth recently, and is being installed in the new building which is now nearing completion. It is expected that the new factory will be running in a few weeks. The plant will give employment to over 30 hands. Mr. Galbraith, the senior member of the firm, will remove from Chatsworth to Owen Sound.

## Too Much Belt Dressing

Sometimes a new belt is allowed to stretch without being taken up, until it is really too slack to drive the machine on a heavy load This often happens when a rush is on and no time can be spared in tightening the belt. A large quantity of belt dressing is applied—too large a quantity in fact, and the quality of the belt dressing is condemned because it fails to give satisfaction. The best way to do in a case of this kind is to turn the belt over for the balance of the day. In the morning you can return it to its former position, after tightening it up.

The
**PULLEN Wire-Lacing GAUGE**

Ends all troubles with WIRE-LACED BELTS. Insures perfect spacing of lace holes, perfect joints, and smooth running, long wearing belts. Instantly adjusted to any size belt, on either side or edge, and the holes punched through the Gauge quicker than without it. Pays for itself many times over in time and annoyance saved.

Mailed to any address on receipt of $1.00. Money back if you're not satisfied after trial.

**Leather Preserver Mfg. Co.,** 510 Munroe St. **Chicago, Ill.**

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**GLUE HEATER**

Send your address and receive descriptive circular of Glue Heaters, Glue Cookers and Hot Boxes with prices.

**The Weatherly Co**
Grand Rapids, Mich.

# Boxes and Cooperage

## Failures

There is one branch of the wooden package industry —packing house cooperage—that has been and is unprofitable. One reason is that the price of these packages fluctuates from week to week, or oftener, and of late have not paid for the material and labor.

Speaking of the Chicago market it was bad, and naturally spread over the whole packing house district. For instance, an ash pork barrel was sold for 72c., and has sold since for values that did not net a profit. It cost to make this barrel not less than 87¾c., and this is the way we figure it: Staves, 35c.; heading, 16c.; steel and rivets, 11¾c.; overhead expense, hauling, etc., 25c.; total, 87¾c. Some coopers have had the audacity to deliver those same barrels, on a 15c. rate, for 95c. Who pays the fiddler for this kind of business? It certainly is not the packer.

Waste in the cooper shop varies from nothing to 25 per cent., but it is always there, and probably 20 per cent. would be a fair average to add to the cost of any package. In other words, if you are using up one thousand staves, it takes twelve hundred staves to make the barrels.

## Nail Kegs

The early manufacturing of staves for nail kegs were produced almost entirely eighteen inches long and very largely from an accumulation of waste in the manufacturing of cut slock barrel staves, commonly known as cut-offs. The keg hoops were also and are to-day wholly an accumulation from the waste product in the manufacturing of the standard coiled elm slack barrel hoops, but this cannot be said of the nail keg heading, which is produced almost entirely from the run of the log.

Not many years ago nail kegs were put together principally by hand coopers, but as the demand for kegs continued to increase, hand coopers began to grow scarcer and it resulted in learning boys to set up the kegs and fire them, after which the hand cooper would complete the keg. This improvement was followed by setting up, trussing, chamferring and crozing and nailing hoope machinery, thereby eliminating very extensively the skilled cooper. Another valuable machine was developed in the nature of the bilge saw for the manufacturing of bilge sawed chamferred and crozed keg staves and it was the means of enabling the stave manufacturer to take care of the increased demand and work up the timber closer and at the same time enable the nail keg manufacturer to produce a better keg and do away with the chamferring and crozing machine, besides making other changes which were the means of reducing the cost of labor. This advantage was quickly realized by manufacturers of kegs and the sawed staves gradually and almost entirely replaced the cut staves.

The next change was the reducing of the bilge on the staves down to ⅜-inch and adopting dry kilns in the cooper shops and eliminating the heater fires, which was the means of reducing the fire risk and labor.

The adoption of the use of steel hoops replacing the wood was the next improvement. This improvement did not come in too soon because the demand for the wood keg hoops began to far exceed the production.

Following the adoption of the steel hoops it brought forward further improved machinery for the making up of the kegs, which resulted in cutting down further labor requirements as well as the cost of the making up of the complete keg and at the same time produce a much superior keg and give results that the former wood hoop keg lacked.

Therefore, the nail keg, up to date, is manufactured from sawed bilge staves, mill run hardwood heading and four steel hoops, but a substitute for this keg will soon be heard from which will not only reduce the labor about 75 per cent., but the cost of the keg in itself considerably, while the keg will be much stronger and more durable than the nail keg up to this writing.

## Inspection

This matter of inspection is the one important link in slack stock manufacture which should be given much more attention than the average mill has applied to it. Herein lies the usefulness, reliability and quality of the barrel eventually manufactured from it, and the future success of the trade is more or less dependent upon this one point. A manufacturer uses very poor judgment when he will permit stock to leave his factory that is not up to the grade at which he has sold it, and it is an economic necessity, both to the manufacturer and to the consumer, that effective steps be taken to secure better quality in material, the jointing is especially poor, instead of the joints of the staves being cut smooth and uniform, in the majority of cases they are merely broken off. A jointing outfit is practically a little factory in itself, operating off in one corner of the yard, where you place full confidence in the ability of the jointer. His machine does the work poorly or well, depending upon its condition, and he often uses his own discretion in grading. With his helper he operates all day long, and if the superintendent or foreman of the plant does not visit him regularly every two or three hours one very important part of the manufacture of good staves is being neglected, and as a consequence the barrel manufactured from such stock is faulty. Herein lies one reason why the "bag" is constantly coming into more favor and is making such inroads upon the barrel.

I feel that if the manufacturers to whom this article is written will give more attention to the matter of grading and jointing staves, that the coopers' troubles will be reduced to a minimum, and there will be less cause to fear that the bag will eventually supersede the barrel.

## Rotary vs. Sawed

**Advantage of both kinds of Cigar Box Lumber set forth and discussed by a Manufacturer in the West**

In taking up the good features of rotary cut cigar box lumber and that it can be used successfully, I fully realize that I am very much in the minority and

appreciate that a large percentage of cigar box manufacturers are prejudiced and don't agree with me.

Now, let us take up the reasons for the great preference for sawed over rotary stock. Isn't it a fact that most of the prejudiced ones are governed by rather limited experience with the rotary stock and in most cases accept the superintendent's or shopman's opinion as final, which invariably is only intended, but which does not really cover the full benefits derived one way or the other?

Granting such is the case, we call to mind every shop boxman's experience of occasionally finding a warped board; this necessitates him placing it for a bottom or an extra effort to nail it to the box satisfactorily, but when he encounters warped pieces in his sawed stock, it is almost a physical impossibility to remedy it and this applies particularly to tops, and all boxmen should acknowledge this as a fact.

It is these little efforts on the part of the help that make it difficult very often to get a boxman convinced of these objections being of some advantage, as well as disadvantage, when making actual comparison of results.

We claim that by being compelled to purchase only prime choice logs for cutting veneers in order to obtain good results from yieldage as well as quality, we have the advantage over sawed, as they invariably saw the logs as they get them and make their selections after stock is manufactured. We assume that on account of the necessity of being able to use the very best logs for cutting veneers, it is only natural to presume we should have the very best grade in order to produce good results.

We also set forth the advantages of cut lumber, be it spliced or rotary, that one gets each board in every bundle the same length and not a variation of lengths, as you get in sawed. This variation in length is bound to cause a waste of about 5 per cent., for the cross-cut sawer will be sure and cut this off; in the uniform lengths this is avoided.

In our experience we have also been convinced that rotary has the advantage over the sliced tops, due to the fact that it is cut with the grain, and the sliced breaks the grain. The superiority claimed is based on natural conditions and we believe this is sufficient proof of our contention.

It stands to reason, if only choice prime logs are used and all properly and not overly steamed, firmly and evenly cut with strong pressure-bar, avoiding breaks, and from there immediately put through the dryers, the stock is ready to be finished. For veneered lumber it leaves the dryers to be put in storage from 30 to 60 days before stock is laid with cedar veneers. This insures good veneer stock, as stock becomes permanently set before laying of veneers. With the imitation finish, this should also have hurried attention after it leaves the dryers and if stained and grained immediately and bundled and put into the storage house to be cross piled to settle, remaining in the same from 60 to 90 days, it becomes permanently set and should then be O. K. and ready for use.

We sincerely trust this article will have the desired effect of converting a few disbelievers and in conclusion we are very pleased to state that only recently two old, large manufacturers of cigar box lumber have adopted rotary cut. This should be some further proof of our contentions of the merits of rotary cut."—A. G. Wiedmann, in Barrel and Box.

# Official Test of First Machine Made in Canada

**Something about the Ingenious Machine which makes Boards out of Scrap Pieces of Lumber; also Some Reference to the Factory where Machine is made**

The Linderman Machine Company, or more properly speaking the Canadian Linderman Company, Limited, is now in full swing and the first machine to be completed at the Woodstock factory has been given its official test, which test proved satisfactory to both the makers and the spectators who had the privilege of witnessing it.

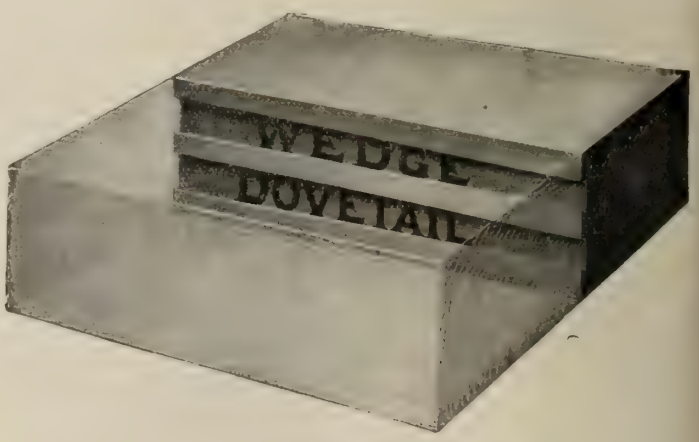
The shops of the Linderman Company are located on Tecumseh street, on the property to the south of the Stewart Stove Works. The building, which is of modern concrete construction, is 208 feet long by 100 feet wide, with a floor space of some 22,000 square feet. Woodstock manufacturers who have inspected the building pronounce it to be an ideal factory building. Its shipping facilities are unexcelled as a spur line of the C.P.R. is constructed through the end of the building so that the heavy machines can be loaded on the cars by means of an immense crane. The factory is well equipped with iron working machinery of all kinds, including lathes, drills, milling machines, etc.

The building is heated by a hot blast system, and a compressed air equipment is used for working pneumatic hammers, chisels, etc.

A feature of the factory somewhat different to anything heretofore seen in Woodstock is the large travelling electric crane which is operated by one man from a system of levers. This crane runs on an elevated track throughout the entire length of the building and is so constructed that it can pick up a machine weighing some 15 tons and carry it to any part of the building with the greatest possible ease.

The company has on its payroll, including its business staff, some fifty hands.

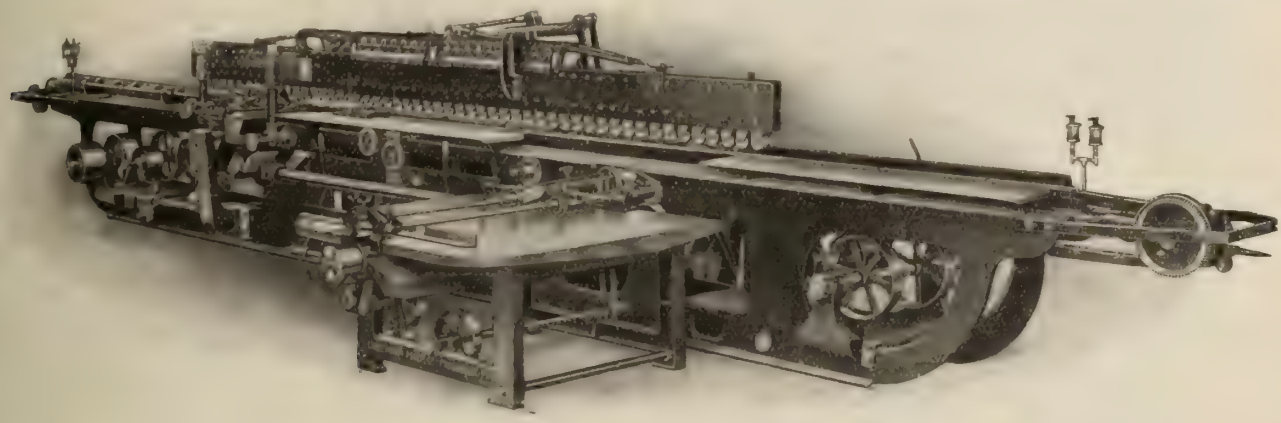
The machine which this company is manufacturing is known as the Linderman automatic dove-tail glue




matcher, a machine that units scrap pieces of lumber together, forming a strong, wide board. The odd pieces of lumber, which the factory would otherwise throw away, are fed into the machine from either end, one set of knives cutting out the groove for the dove-

tail joint, while the other set of knives cuts out the tongue. A glue roll applies the glue, while another brush wipes off the surplus. The pieces are then brought together automatically and are delivered from the machine as one board, stronger, so it is admitted, than were the board of one original piece. A thorough demonstration of the working of this wonderful machine was given at the factory to the entire satisfaction of all who witnessed it. Formerly this process of joining odd pieces of lumber together had to be done by hand but the process was so slow and therefore so expensive that the smaller pieces of lumber were never used. The speed and ease with which this is now done by means of the Linderman Automatic Machine makes it possible for pieces of lumber of all sizes to be used so that the waste of raw material at a woodworking establishment is reduced to a minimum. Besides working up waste into marketable products, such as door cases, etc., the machine is also used by high-class furniture manufacturers for uniting desk tops, chair seats, panels, etc.

The Linderman Machine Company, of which the Woodstock factory is an offshoot, is located at Muskegon, Mich., were it has been in operation for some



ten years. Its capacity at the time it began operations was two machines a year, while now it is turning out 75 machines a year. During the ten years that the company has been operating in the United States some 300 machines have been manufactured and sold, nearly all of which have been sold to manufacturers in the United States. Some ten machines, however, have been sold in Canada and Europe from the Muskekon plant.

The Woodstock plant is capable of turning out 25 machines a year and the company has sufficient orders on hand already to keep it busy with its present staff for the next two months, and if the number of enquiries that are coming in from Canadian manufacturers from time to time can be taken as a criterion, the company can look forward to a very busy season.

The Woodstock Company is an entirely independent organization of the Muskegon Company, although the controlling interest is in the hands of the Muskegon stockholders.

The officers of the Canadian Company are: B. A. Linderman, Muskegon, president; J. C. Emory, Muskegon, vice-president; William Munroe, Muskegon, secretary; D. W. Karn, Woodstock, treasurer. The foregoing, with H. A. Little, Woodstock, compose the board of directors.

Mr. Charles A. Peterson is the manager of the Canadian factory. Mr. Peterson came here from Worcester, Mass., some six months ago. Mr. Peterson has had an experience covering some 15 years in the manufacture of woodworking machinery, and for the three years prior to coming to Woodstock held a responsible position with the well known firm of Baxter, D. Whitney & Son, manufacturers of woodworking machinery, in Massachusetts. During the six months that he has been in Woodstock, Mr. Peterson has had to devote practically all his time at the factory, so that as yet he has not come much in contact with the people of the city. Those who have had to do with him, however, are glad to welcome him as a citizen of Woodstock.

Mr. Joe Norstrom, of Muskegon, Mich., is the superintendent of the factory. Mr. Norstrom was connected with the Muskegon plant before coming to Woodstock and was selected to superintend the Woodstock factory because of his especial qualifications.

Mr. A. W. Marr, of Woodstock, is cashier of the factory, and Mack Clark the stenographer.

With the exception of the superintendent, all the workmen are either from Woodstock or from the district.

Mr. B. A. Linderman, the head of both the Muskegon and Woodstock plants, is an inventor. He is also an expert machinist and has a wide knowledge of the building of factories from the work of the excavation to that of putting on the roof; has an acquaintance among the users and prospective users of his machines, not only throughout America but throughout Australia and Europe. It is understood that Mr. Linderman will take a personal interest in the Woodstock factory and that he will spend a portion of his time at least at the works here.

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On the Little Black river the St. John Lumber Company made a cut of about 5,000,000 feet of logs for the mill at Van Buren. They have already landed 2,000,000 feet on the river, and are at present working on the third million. After that is out it is expected that the rest will have to be left until next season. Men are working night and day on this operation. Two shifts handle the work and the log hauler makes four trips every 24 hours on a 12-mile haul from the yard to the river, where the logs are landed. The haulers make an average of 96 miles a day.

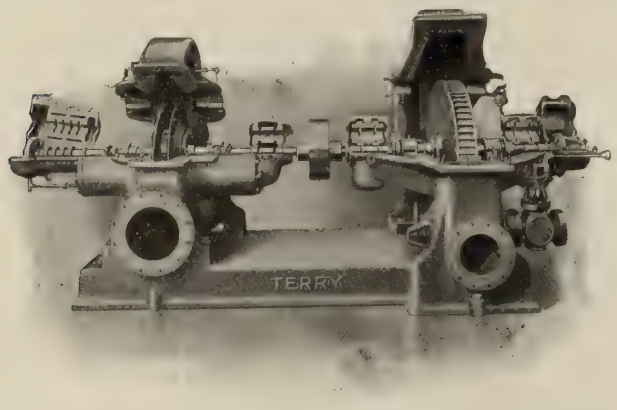
Teacher—"Now, Tommy, suppose a man gave you a hundred pounds to keep for him and then died, what would you do? Would you pray for him?"

Tommy—"No, sir, but I would pray for another like him."

# The Power Plant

## Turbine Driven Centrifugal Pumps in the Power House

A pumping apparatus which is finding an increased number of users is the centrifugal direct connected to a steam turbine. In many cases the ponderous reciprocating units are being discarded in favor of the lighter, simpler and more flexible type. Advantageous as the centrifugal alone is, its usefulness is greatly




augmented when it is combined with the steam turbine. The compactness of such an installation is shown in the accompanying cuts of various types of centrifugal pumps direct connected to Terry steam turbines and mounted on a common base. These units are manufactured by the Terry Steam Turbine Company, of Hartford, Conn.

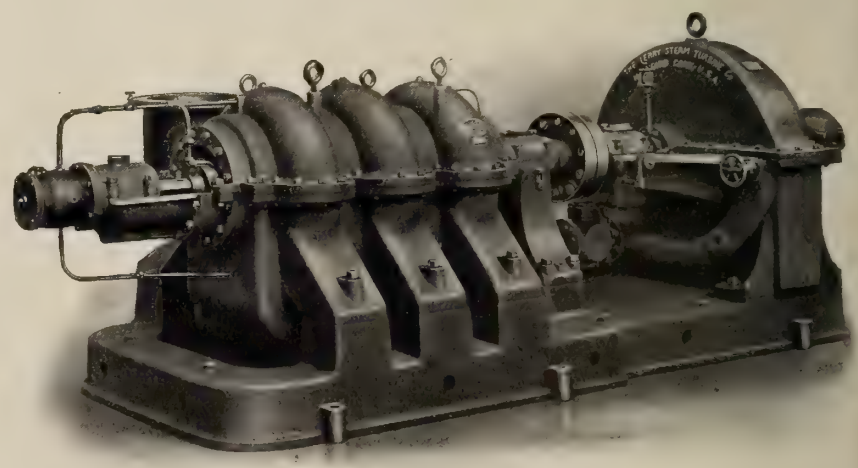
Space considerations are often of the highest importance in the power house and the compactness of the turbine driven centrifugal is an added argument in its favor, and the fact that high rate speeds and consequently smaller sizes may be used in many cases gives it a great advantage over any type of reciprocating unit. In high speed units the turbine's only rival for this service is the electric motor, and while it is true that many high speed centrifugal pumps are operated by motors in power houses, the fact remains that among the auxiliaries of a steam station, particularly in connection with condensor pumps, the electric motor is out of place.

The thermal efficiency of the turbine as a prime mover compares favorably with the reciprocating engine, but this feature is rarely of importance because of the extensive use of exhaust steam from auxiliaries for heating the feed water. As compared with the reciprocating outfit, the exhaust steam from the turbine may be used in an open heater without danger of carrying oil over to the boilers, whereas, with reciprocating units it is generall considered more advisable to use them with closed heaters or else to throw away the exhaust steam entirely.

Where large condensing units are employed and the basement space is limited, the small dimensions of the turbine driven pum penables it to be placed in almost any available place, very often directly under the condenser itself. This is, of course, partcularly true of hot well pumps, but in many cases the circulating pumps have also been arranged in this fashion.

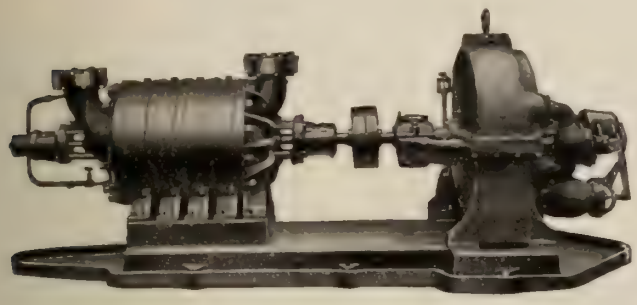
Although the field for these units in power house design is very broad, there are two main uses to which they are particularly applicable—in connection with condensers and for boiler feeding. For circulating the water for a surface condenser, the pump should be able to handle large quantities of water at comparatively low head and medium speeds. The large capacity of a turbine driven centrifugal and its small size are important advantages for this class of service. The operation is in general steady, as the rate of flow of the condensing water is never altered, regardless of the load on the main unit. A steam turbine with its close regulation, is well adapted to run satisfactorily under this steady load with practically no attention whatsoever beyond occasional oiling. Furthermore, on sudden demand, the turbine will start perfectly cold and thus get the circulating pump into action far quicker than is possible with a stam engine.

Centrifugal wet vacuum pumps are becoming much more commen of late since the troubles which cropped out in the first installations of this character have been practically remedied. If a sufficient suction head is available on a pump, say three or four feet, care is taken to insure tightness, and a discharge head of 25 to 30 feet is provided, these units will operate satisfactorily under all conditions of load. The rapid fluctuations often experienced on the main units of a central station cause very rapid changes in the total

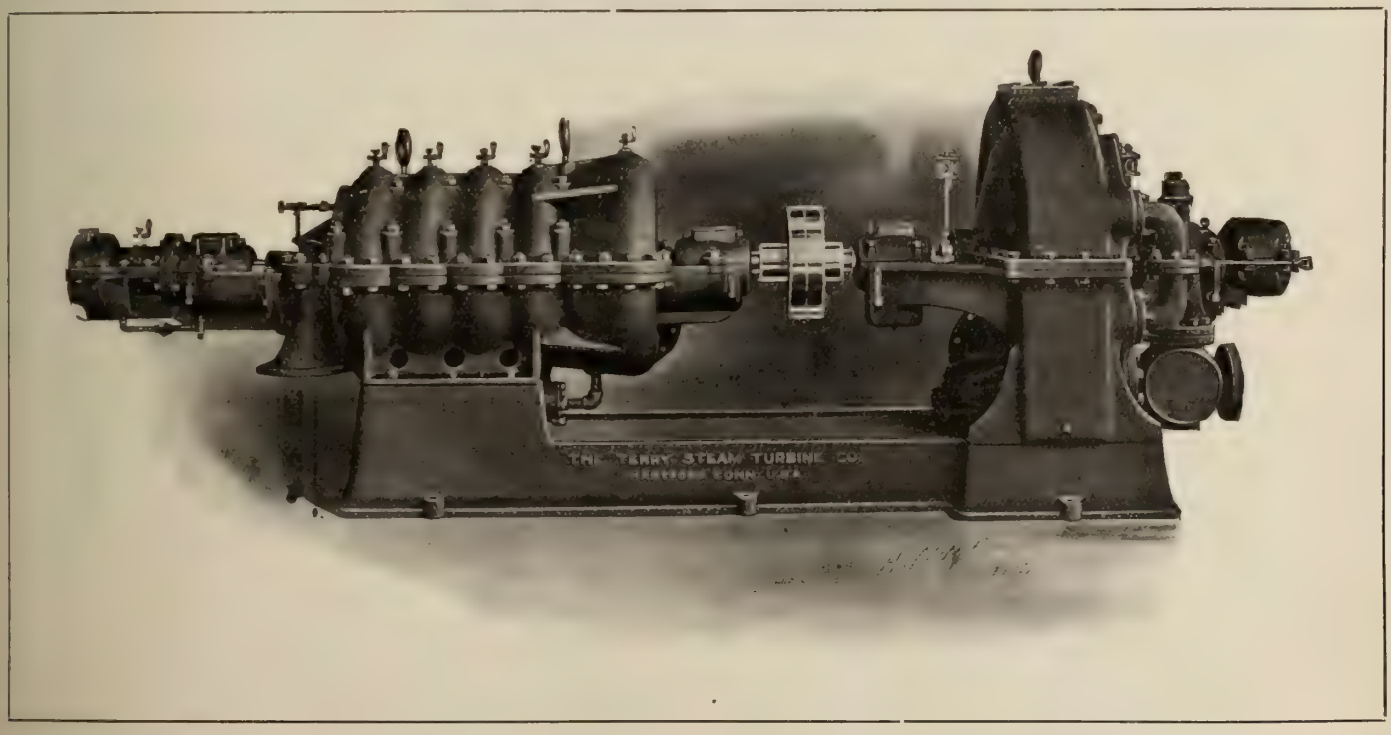


water rate and consequent speeding up and slowing down of the wet vacuum pump. The flexibility of the direct turbine driven centrifugal is of vast importance in such cases. By the use of a float valve, operated by

a float in the condenser hot well, the action of these units can be made absolutely automatic and there is no possibilty of the hot well being sucked dry. The only attention required is occasional oiling. A turn of the throttle valve stops the pump and it is reay to start up again without any preliminary work whenever the throttle is reopened.



One of the accompanying illustrations shows a 5-stage centrifugal pump manufactured by the Jeanesville Iron Works, for boiler feed purposes, direct connected to a Terry steam turbine. This particular unit is one of eight installed in a large power house in which there are no reciprocating boiler feed pumps at all, reliance having been placed entirely on the newer type. This is a comparatively recent departure from established practice that has been entirely justified by the results obtained. The ease of handling such units as these recommends them to the power plant man and the ever ready qualities are of particular importance in plants liable to sudden peaks.



The use of centrifugal pumps for feeding boilers is growing rapidly in favor, high pressures being obtained by the multiplication of stages and capacity by high speeds. Pressures up to 270 pounds have been handled by 5-stage pumps with a capacity of anywhere from 500 to 1,500 gallons per minute. The ponderous size and complication of the reciprocating type of boiler feed pump is entirely missing in the centrifugal type, compactness and simplicity being an essential of the latter. Furthermore, the pusations imperative with the old style pump are missing. This feature makes it possible to meter the boiler supply with accuracy, the Venturi tube, for example, giving results within one per cent. of those obtained by means of tank scales. If the boiler feed water is poor, but small damage is done to the centrifugal pump. The usual type of rotor for handling boiler feed water is of bronze and corrosion is practically unknown. Foreign matter which would score the valves and cylinders of a reciprocating pump badly will go through a centrifugal without any trouble, and hot water can be handled with no more bad effects than cold. Both turbine and pump being so simple in design wearing parts are reduced to a minimum and the cost for repairs, oiling and attendance consequently very much diminished.

The centrifugal pump is now accepted as a standard design for fire pumps, many large installations of this character having been made within the last few years. Fire service is always emergency service, and this means ability to start up quickly at any time. When the pump is properly primed—a very simple matter to provide for it is only necessary to open the throttle valve of the turgine to get results. To obtain full rated pressure and capacity it is merely a question of getting up to rated speed, and this the steam turbine accomplishes more quickly than any other type of prime mover.

Various methods of priming the pumps are in use and the popular method in power plant practice is to place a foot valve on the end of an intake pipe, this insuring the pump being floated when it is desired to start up. Flap valves placed in the discharge line and steam ejectors are other means of preventing the pump becoming air-bound. Aside from this simple protection there is practically nothing to think about in connection with these units for any service and their wide application proves conclusively the soundness of the theories upon which they are based.

# From Coast to Coast

FIRE IN GUELPH MILL.

The large planing mill owned by George McAllister at Guelph, Ont., was burned on the 4th inst. There was a large quantity of lumber and slabs in the yards near the mill and at least $15,000 worth was destroyed. Mr. McAllister was in the West at the time.

EXTENDING THEIR PLANT.

The Strathroy Furniture Company contemplate further extensions of their plant at Strathroy, Ont. Last year they increased their floor space by an addition of 14,000 square feet, also a new dry kiln 120 x 80 feet, capable of drying 450,000 feet of lumber.

MAKING ADDITIONS.

The Brennan Planing Mills, Hamilton, are making additions.

WANT TO SELL BUILDING.

Mr. J. R. Shaw, of Woodstock, the managing director of the Canada Furniture Company, has written to Mayor Thorp, of Guelph, in reply to the latter's letter stating that they are as anxious to dispose of their building in this city as the city is to see them do so. They are doing their best to either sell or lease the property, the letter says.

LOOKS LIKE COMBUSTION.

What might have developed into a serious fire, but for prompt action on the part of a few men, occurred at the Zimmerman Bros.' stave factory at Tavistock, Ont., last week. It appears that while one of the employees was in the mill about 8 o'clock he noticed sparks dropping from one of the beams above his head. Upon investigation he found that the sawdust, which had accumulated on the beams, was burning. It is not known how long the fire had been smouldering, but with a few minutes' more headway it is hard to say what would have occurred.

CO-OPERATIVE FURNITURE COMPANY.

A meeting was held in the Guelph, Ont., city hall recently for the purpose of organizing the proposed Co-operative Furniture Manufacturing Co. There was a good attendance, the working men, in particular, turning out well. Mayor Thorpe was appointed chairman and Robt. McDonald secretary.

HAPPENINGS IN N. B.

Mr. W. L. Kennedy will operate the sawmills at Debec Junction, N.B.

Mr. A. P. Stevens has finished building his new sawmill at Union Corner, N.B. His mill was burned last year.

Mr. A. Hayden is rebuilding his sawmill at Woodstock, N.B., which was recently destroyed by fire.

The Maritime Lumber Company, Limited, have taken over the Thos. Nagle Lumber Company, Limited, St. John, N.B., and Montreal.

NEW MILL TO BE BUILT.

The Diamond Mills Company, Revelstoke, B.C., have recently received a British Columbia charter, and have specifications out for a sawmill of 200,000 feet per day capacity, at Big Eddy, B.C. Besides Mr. C. A. Barnum, of Revelstoke, a number of American capitalists are interested.

SAWMILL BURNED.

Lynch & Ryan's sawmill, north of Cordova, Ont., was burned to the ground recently. It is not known how the fire started, but it must have spread with great rapidity. A thorough inspection of the premises was made late in the evening and no sign of fire was discovered. The fires were very low and were carefully banked so that the fire could not have started from them. There was but $700 insurance on the premises, which will only cover a small portion of the loss. Last year Lynch & Ryan had a mill burn down on the 25th of March, and this is the third fire this firm has had in less than four years. The firm will immediately rebuild.

MILL DESTROYED B YFIRE.

Fire broke out in the shingle mill of the Pitt River Lumber Mills Company, Pitt River, B.C. The shingle mill, sawmill and practically the whole of the lumber yard were consumed, with a total loss of about $200,000. It is believed that the flames originated by a hot box in the machinery of the shingle mill. The fire protection system was put out of commission early in the fire. Partial insurance was carried on the property and it has been stated that the company will rebuild on the same site.

QUICK BUILDING.

The progress on the new Shevlin-Clarke sawmill at Fort Frances, Ont., excites considerable comment as the work of construction proceeds. Although some forty days have elapsed since the work of clearing the ground began, the mill proper is nearly completed and only awaits the placing of the machinery. The planing mill will soon be as far advansed so that by the middle of May there will not be very much more to do in construction work.

MERGER O FLUMBER INTERESTS.

The Michigan-Pacific Lumber Company and the Michigan-Puget Sound Company have consolidated, making one of the largest lumber concerns on the continent. The new corporation is capitalized at $2,500,000, and holds 52,000 acres of timber on Vancouver Island alone. J. H. Moore, of Victoria, B.C., has been made vice-president and general manager. The other

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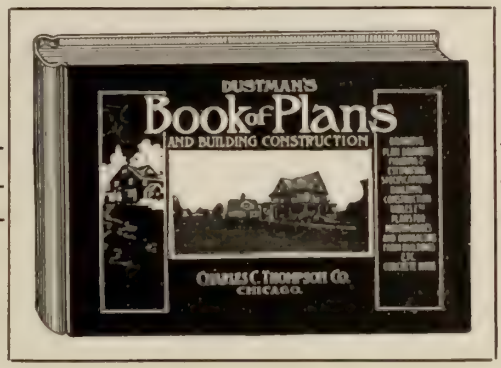


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HAVE RECEIVED CHARTER.

The Unity Lumber Company, Limited, received a Saskatchewan charter. The capital is $10,000.

BUILDING IN THE NORTHWEST.

Henry Finger is building a large sawmill in the Pas district of Saskatchewan. The machinery is on the way and he hopes to have the plant in operation by June.

DESTROYED BY FIRE.

It is reported that the Red Deer Lumber Company's sawmill at Barrows, Sask., has been destroyed by fire, with a loss of $90,000. The insurance covers the loss.

GOING IN FULL BLAST AGAIN.

The Yale-Columbia Lumber Company, at Nelson, B.C., opened their mill on March 15 after the winter's close down. The company count upon turning out from 1,000,000 to 1,100,000 feet per month from now until the end of the year.

OPENED MODEL PLANT.

Waters & Pascoe have commenced manufacturing in their new sash and door factory at Nelson, B.C. It is claimed that the plant is the most modern of its kind between Winnipeg and Vancouver. With an ordinary force its capacity is estimated at 50 doors and 100 window sashes a day.

THREE NEW MILLS.

Three large lumber mills, which will handle lumber from his three timber berths, will be installed, it is understood, this summer by T. A. Burrows, of Edmonton, Alta. It is understood that one plant will be installed in the limit near Jasper Park, and another on the McLeod river.

MILL PLANT SOLD.

The property and plant of the Talbot-Allard Lumber Company, Limited, of Outremont, a suburb of Montreal, was sold by auction on March 22, the purchaser being Mr. Robert Neville, Jr., and the price in the neighborhood of $40,000. The plant consisted of a planing mill and the stock included a considerable quantity of lumber. Mr. Neville being an extensive builder and contractor, will find his new acquisition of considerable value in his business.

ENGLISH CAPITAL WOULD NOT INTEREST.

Word has been received from England that Mr. Snowball, one of the Miramichi Pulp & Paper Company liquidators, has not succeeded in interesting English capital in that enterprise, and that there is very little probability of his being able to do this on the present trip. It is altogether likely now that the bank, through Mr. Dick, the receiver, will have to see if it can get the mill in operation again. The mill was put up for $345,000, a very reasonable price, and there is no doubt but that it will be running again ultimately.

REPORTED ASSIGNMENT.

David Steven, sawmill proprietor, Chesley, Ont., is stated to have assigned to Matthew A. Halliday.

NEW INCORPORATION.

The Kitsmugallum Timber Company, Toronto, has been incorporated with capital of $1,500,000. Incorporators: W. J. Rooney, G. F. Morrison, R. F. Pack, all of Toronto.

The Skeena-Nass Pulp & Lumber Company, Limited, Toronto, Ont., has been incorporated with capital of $1,500,000. The incorporators are: W. Gamble, barrister, Ottawa, and H. B. Houser, financial agent, Toronto.

The Columbia River Lumber Company, Limited, Toronto, has bee nincorporated with capital of $5,500,000. The incorporators are: F. H. Phippen, K.C.; G. G. Ruel, G. F. Macdonnell, Barresters, all of Toronto.

POSSIBLE NEW MILL.

Mr. Bluemond, a prominent lumberman of Picton, has been negotiating for a site in Fonthill, Ont., on which to locate a lumber yard. It is not definitely known yet whether a mill will be erected in connection with the yard.

HAVE RESUMED OPERATIONS.

The Nepisiguit Lumber Company, of Bathurst, N.B., lately in liquidation, have resumed operations at the old Stacey mill, and shipments of lumber have been commenced from the new mill yard near Caraquet Station.

MAY PURCHASE.

Mr. William Johnson, of Montreal, has been looking over the plant property of the Miramichi Pulp & Paper Company, at Chatham, and expressed a desire to purchase it if terms were satisfactory. The liquidators offer an option at $345,000.

ROADS HAVE NOT LASTED.

Lumbermen have been considerably surprised to hear that it is now feared that the roads on the upper St. John, on which the log-haulers have been operating, will not last, and that some of the cut cannot be taken to the landings. Some of the lumber operators in northern Aroostock county, Maine, are having difficulty in getting their season's cut of logs to the landings, and the St. John Lumber Company, of Van Buren ,will leave about 3,000,000 feet of logs in the yards on two of their operations.

NEW PROPRIETOR.

W. H. Magee, of Vernon, a millman of much experience, who has been operating a plant at Lumby, will take over the Ruth & Turner mill at Canoe Creek, Okanagan, B.C., this summer.

MR. MAXWELL RETIRES.

Mr. E. J. Maxwell, of E. J. Maxwell & Company, who commenced business in Montreal at the corner of

Craig and St. Alexander streets in 1863, has just retired after a long and honorable career. Mr. Maxwell made a specialty of imported hardwoods for veneers, interior house and office furnishings, and all materials for cabinet makers' purposes. Mr. Maxwell's father wasa a builder and cabinet maker, so that he had the advantage of a thorough knowledge of wood goods of all kinds. In the early days of the lumber business in Montreal, dealers were obliged to get in enough stock during the period of navigation to last the balance of the year. Everything came in by sailing vessels, and it sometimes took six months for an order of foreign timber to be delivered. The business will be continued under the name of E. J. Maxwell, Limited, at 279 St. Antoine street. Mr. W. C. Maxwell, nephew of Mr. E. J. Maxwell, will be secretary-treasurer and manager of the firm.

## WILL BE OPERATED.

Some time ago the announcement was made that the Scott Lumber Company's Victoria mill would be operated this year. There is every indication that the prediction will prove correct. A definite announcement is expected in a day or two.

## CONSTRUCTION STARTED.

Construction has been commenced by the enticton Lumber Company on their sawmill at Penticton, B.C. Active sawmill operations are expected to commence within two months. The mill will have a capacity of 35,000 feet of lumber a day and a large drying kiln will be built by the company in the vicinity of the mill. lans have been prepared for extensive yard accommodation and subsequently a pipe and box factory will be built. It is the intention of the company to make a bid for a very wide market. The concern has secured splendid tamarack berths.

## TRANSPORTATION FACILITIES IMPROVED.

Sawmills owning timber limits south of the Fraser river, B.C., which have not hitherto been cut, on account of the lack of transportation, will be enabled to work many of these limits now on account of the facilities afforded by the Chilliwack tram line. In anticipation of this, the B. C. Electric Railway is building a loop from its Chilliwack line on the south side of the river to the west of the Westminster bridge along the waterfront. This line is for the purpose of dumping logs from the cars into the river where they can be boomed and taken to the mills.

## NEW PROPOSAL ON FOOT.

Some time ago difficulties were encountered in connection with the operation of the British Canadian Wood Pulp & Paper Company, at ort Mellon, on Howe Sound, not far from Vancouver. The latest proposal is that the property be taken over by a company headed by Lester W. David, a prominent operator on the coast. Mr. David has agreed to organize a company to take over the property of the B. C. Wood & Paper Company at a capitalization of $2,500,000, in shares of $1. He will assume the indebtedness of the old company, approximating $225,000. In consideration the assets will be transferred to Mr. David for 427,000 preference shares. The old company will have the selection of one-third of the members of the board of the new company.

## STEAM KILN INSTALLED.

A large Frost engine is now being installed at the Eburne sawmills, Eburne, B.C., to cope with additional work. The B. C. Electric Railway Company is also putting in a spur from the station to run in logs to the mill from Mount Lehmon, whence it is expected to bring in some 60,000 feet a day. The sawmill company have between eighty and ninety million feet of timber at Mount Lehmon. An important addition to the plant of the mills is the installation of a steam drying kiln, which not only dries the lumber perfectly in twelve hours, but also kills all the pitch in it. Under the old process it took from four to six days to dry the lumber, which now occupies half a day, and that without any fear of "checking" or splitting of the lumber. The capacity of the kiln is 18,000 feet of lumber every twelve hours.

## THEIR VIEW OF RECIPROCITY CHANGED.

The Mountain Lumbermen's Association, of British Columbia, recently passed a resolution condemning the reciprocity proposals. This was done when they had not full information upon the situation. The following letter, which explains itself, has now been sent by the secretary of the Association to members: "It appears that at our annual meeting we did not have correct information regarding the proposed changes in the tariffs of Canada and the United States. It is not intended to change the present Canadian tariff affecting lumber at all. The American tariff will be materially reduced, and, therefore, British Columbia manufacturers will not be placed at any greater disadvantage than we have been laboring under for the past ten years. On the other hand, by reason of the reduction of the United States tariff on shingles the industry in British Columbia will derive a substantial benefit, and when the lumber market in the States recovers we shall be in an improved position to cater for some of their trade."

## SAWMILL TO BE ERECTED.

The Diamond Sawmills Company, which includes both Canadian and United States capital, in which F. C. Adams, of Portland, Ore.; C. H. Danaher, of Tacoma, Wash.; Charles Barnum, of Revelstoke, B.C., are interested, proposes to erect a mill with a capacity of 200,000 feet per day capacity at Big Eddy, near Revelstoke. They are negotiating for the purchase of 500 miles of pulpwood and saw timber in the Columbia valley. Work on the sawmill will be started immediately. A 200-ton pulp and paper mill is also to be erected.

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Sheldons, Ltd., Galt, Ont.

DRY KILNS.
Canada Machinery Agency, Montreal.
Sheldons, Ltd., Galt, Ont.

DUST COLLECTORS.
Canada Machinery Agency, Montreal.
Sheldons, Ltd., Galt, Ont.

DUST SEPARATORS.
Canada Machinery Agency, Montreal.
Sheldons, Ltd., Galt, Ont.

DYNAMOS.
Canada Machinery Agency, Montreal.

EDGERS (Gang).
Berlin Machinery Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
Simonds Canada Saw Co., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Fisher, Sander Co., Berlin, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

EDGERS (Single Saw).
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
Simonds Canada Saw Co., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

END MATCHING MACHINE.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler Ont.

Mussens, Ltd., Montreal.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

ENGINES (Steam).
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

EXHAUST FANS.
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
Sheldons, Ltd., Galt, Ont.

FLOORING MACHINES.
Berlin Machine Works, Ltd., Hamilton.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler.
Mussens, Ltd., Montreal.
Samuel J. Shimer & Sons, Milton, Pa.
Baxter D. Whitney & Son, Winchendon, Mass.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

FLINT.
Wausau Quartz Co., Wausau.

FLUTING HEADS.
J. A. Fay & Egan Co. ,Cincinatti, O.

GAINING MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinatti, O.
C. Mattison Machine Works, Beliot, Wis.
Mussens, Ltd., Montreal.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie Co., Ltd., Toronto.

GAS ENGINES.
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
H. W. Petrie, Ltd., Toronto.

GAUGES (Saw).
Shurly Dietrich Co., Ltd., Galt, Ont.
Simonds Canada Saw Co., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

GEAR HOBBING MACHINE.
Reynolds Machine Co., Moline, Ill.

GLUE CLAMPS.
Black Bros. Machinery Co., Mendota, Ill.
H. W. Petrie, Ltd., Toronto.

GLUE HEATERS.
J. A. Fay & Egan Co., Cincinnati, O.

GLUE SPREADERS.
J. A. Fay & Egan Co., Cincinnati, O.

GRINDERS (Cutter).
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Falls Machine Co., Sheboygan Falls, Wis.

GRINDERS (Knife, etc.).
E. C. Atkins & Co., Hamilton, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
T. A. J. Burton Saw Co., Ltd., Vancouver, B.C.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

GRINDERS (Tool).
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Valley City Machine Works, Grand Rapids, Mich.

GROOVING HEADS.
E. C. Atkins & Co., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
C. Mattison Machine Works, Beloit, Wis.
Samuel J. Shimer & Sons, Milton, Pa.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

HAND PROTECTORS.
J. A. Fay & Egan Co., Cincinnati, O.
Jones Safety Device Co., Hamilton, Ont.

HAND SCREWS.
Black Bros. Machinery Co., Mendota, Ill.
J. A. Fay & Egan Co., Cincinnati, O.

HEATING APPARATUS.
Sheldons, Ltd., Galt, Ont.

HANDLE AND SPOKE MACHINERY.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
J. M. Nash, Milwaukee, Wis.
Ober Mfg. Co., Cragrin Falls, O.
Baxter D. Whitney & Son, Winchendon, Mass.

HUB MACHINERY.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.

INJECTORS.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

JOINTERS.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

KNIVES (Planers and Others).
Shurly Dietrich Co., Ltd., Galt, Ont.
E. C. Atkins & Co., Hamilton.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.
Samuel J. Shimer & Sons, Milton, Pa.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

LACE LEATHER.
Sadler & Haworth, Montreal.

LAST MACHINERY.
Canada Machinery Agency, Montreal.

LATHES (Pattern Makers').
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Valley City Machine Works, Grand Rapids Mich.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

LATHES (Turning).
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Haspeler, Ont.
C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Plessisville Foundry, Plessisville, Que.
Valley City Machine Works, Grand Rapids, Mich.
Baxter D. Whitney & Son, Winchendon, Mass.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

LOOSE PULLEYS.
J. A. Fay & Egan Co., Cincinatti, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

LUBRICANTS AND GREASES.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

MITRE MACHINES.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

MITRE SAWS.
Shurly Dietrich Co., Ltd., Galt, Ont.
E. C. Atkins & Co., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Simonds Canada Saw Co., Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo N.Y.
H. W. Petrie, Ltd., Toronto.

MITRE CLAMPS.
Black Bros. Machinery Co., Mendota, Ill.
H. W. Petrie, Ltd., Toronto.

MORTISING MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
Black Bros. Machinery Co., Mendota, Ill.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinatti, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Jones & Glass Co., Montreal.
Mussens, Ltd., Montreal.
Plessisville Foundry Co., Plessisville, Que.
Valley City Machine Works, Grand Rapids, Mich.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

MOTORS.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.

MULTIPLE BOXING MACHINES.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
J. M. Nash, Milwaukee, Wis.

PATTERN SHOP MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Baxter D. Whitney & Son, Winchendon, Mass.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

PICTURE FRAME MACHINERY.
Black Bros. Machinery Co., Mendota, Ill.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.

PLANES.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.

PLANERS.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Baxter D. Whitney & Son, Winchendon, Mass.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

PLANING MILL MACHINERY.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Samuel J. Shimer & Sons, Milton, Pa.
Baxter D. Whitney & Son, Winchendon, Mass.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
Black Bros. Machinery Co., Mendota, Ill.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie Co., Ltd., Toronto.

PULLEYS.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinatti, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

QUARTZ.
Wausau Quartz Co., Wausau.

RESAWS.
Shurly Dietrich Co., Ltd., Galt, Ont.
E. C. Atkins & Co., Hamilton, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency Montreal.
Simonds Canada Saw Co., Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinatti, O.

Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

RIM AND FELLOE MACHINERY.
J. A. Fay & Egan Co., Cincinnati, O.

RIP SAWING MACHINES.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

ROLLER BEARINGS.
Mussens, Ltd., Montreal.

SAFETY GUARDS (For Band Saw Machines, Jointers, Rip Sawing Machines, Shapers, Swing Saws, etc.).
The Jones Safety Device Co., Ltd., Hamilton, Ont.

SANDERS.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
J. M. Nash, Milwaukee, Wis.
Ober Mfg. Co., Chagrin Falls, O.
Plessisville Foundry, Plessisville, Que.
Fisher Sander Co., Berlin, Ont.
Black Bros. Machinery Co., Mendota, Ill.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

SAND.
Wausau Quartz Co., Wausau.

SANDPAPER.
Black Bros. Machinery Co., Mendota, Ill.

SANDERS (Moulding, Belt and Panel).
Black Bros. Machinery Co., Mendota, Ill.
H. W. Petrie, Ltd., Toronto.

SASH, DOOR AND BLIND MACHINERY.
Berlin Machine Works, Ltd., Hamilton.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Samuel J. Shimer & Sons, Milton, Pa.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
Black Bros. Machinery Co., Mendota, Ill.
H. W. Petrie, Ltd., Toronto.

SAWS (Hand).
Shurly Dietrich Co., Ltd., Galt, Ont.
E. C. Atkins & Co., Hamilton, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
Simonds Canada Saw Co., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.

SAW MILL MACHINERY.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.

Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

SAW SWAGES, AUTOMATIC FILERS.
E. C. Atkins & Co., Hamilton, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

SAW TABLES.
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

SCRAPING MACHINES.
Baxter D. Whitney & Son, Winchendon, Mass.

SCROLL SAWS.
Shurly Dietrich Co., Ltd., Galt, Ont.
E. C. Atkins & Co., Hamilton, Ont.
Canada Machinery Agency, Montreal.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.

SECOND HAND MACHINERY.
Canada Machinery Agency, Montreal.
Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

SHAPERS.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Plessisville Foundry, Plessisville, Que.
Samuel J. Shimer & Sons, Milton, Pa.
Baxter D. Whitney & Son, Winchendon, Mass.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

SHAVING COLLECTORS.
Canada Machinery Agency, Montreal.

SINGLE SPINDLE BOXING MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.

SLAVE SAWING MACHINE.
Baxter D. Whitney & Son, Winchendon, Mass.

SURFACERS.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Baxter D. Whitney & Son, Winchendon, Mass.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

SWING SAWS.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Plessisville Foundry, Plessisville, Que.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

TABLE LEG LATHES.
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Baxter D. Whitney & Son, Winchedon, Mass.

TENONING MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

TOOLS (Hand).
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Samuel J. Shimer & Sons, Milton, Pa.

TRIMMERS.
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.

TRUCKS.
Sheldons, Ltd., Galt, Ont.
Hespeler Machinery Co., Ltd., Hespeler, Ont.

TURNING MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Plessisville Foundry, Plessisville, Que.
Baxter D. Whitney & Son, Winchendon, Mass.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

UNDER-CUT SELF-FEEDING FACE PLANER.
J. A. Fay & Egan Co., Cincinnoti, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Falls Machine Co., Sheboygan Falls, Wis.

GUMMERS, ETC.
E. C. Atkins & Co., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.

UNIVERSAL WOODWORKER PLANER.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt Ont.
H. W. Petrie, Ltd., Toronto.

VENTILATING APPARATUS.
Sheldons, Ltd., Galt, Ont.

VENEER DIERS.
Sheldons, Ltd., Galt, Ont.

VENEER PRESSES (Hand and Power).
Canada Machinery Agency, Montreal.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Hydraulic Press Mfg. Co., Mount Gilead, Ohio.
Mussens, Ltd., Montreal.
Black Bros. Machinery Co., Mendota, Ill.

VISES.
Mussens, Ltd., Montreal.

VISES (Band Saws).
Shurly Dietrich Co., Ltd., Galt, Ont.
Simonds Canada Saw Co., Montreal.
E. C. Atkins Co., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
H. W. Petrie, Ltd., Toronto.

VISES (Pattern Makers').
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.

VISES (Circular Saws).
E. C. Atkins Co., Hamilton.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
H. W. Petrie, Ltd., Toronto.

WAGON AND CARRIAGE MACHINERY.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Baxter D. Whitney & Son, Winchendon, Mass.

WOOD PULLEYS.
Canada Machinery Agency, Montreal.
Plessisville Foundry, Plessisville, Que.

WORK BENCHES.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.

# After the Whistle Blows

Say, boys, the next good story you hear just make a note of it and send it into us. Sometimes it takes lots of digging to get out the necessary number of jokes, and I'm sure there are any number of you fellows who have a good joke up your sleeve, which is just waiting to be told to the rest of the crowd.

To the man who sends in the best story for the May issue, we will present with a set of "Mission Furniture and How to Make It," or a book on "Arts and Crafts Lamps and How Made."

I'm going to be the judge of this little competition, so come along, boys, and let's have that story. Address it to me, care of the "Canadian Woodworker."

Yours truly,
THE EDITOR.

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**Expensive.**

Pat—What do you charge for a funeral notice in your paper?

Editor—Fifty cents an inch.

Pat—Good heavens, an' me poor brother was six feet.

---

**The Question of the Day.**

"Where's Marie?"

"Upstairs, 'm; she's arranging madame's hair."

"And madame—is she with her?"

---

**The Substitute.**

Prosecuting Attorney—"Your honor, the sheriff's bull pup has gone and chawed up the court Bible."

Judge—"Well, make the witness kiss the bull pup, then. We can't adjourn court just to hunt up a new Bible."

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**Taking Advantage of Your Neighbors.**

It happened in Topeka. There are three clothing stores in one block. One morning, the proprietor of the middle store stuck his head out of the door and looked around him. On his left was a huge sign: "Mammoth Bargain Sale"; on his right another: "Closing Out at Cost." He withdrew and in twenty minutes reappeared with this sign, which he tacked up over the door: "Main Entrance."

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**So it Seemed.**

Master (holding unruly pupil by the collar)—"I'm afraid Satan has hold of you."

Boy—"I'm afraid so, too."

---

There was a young man named Cadwalader,
Who saw a young lady and folader,
  But a smack from her hand
  Made him well understand
There were few who struck blows any solader.

---

**'Twas Better Thus.**

A man having occasion to want a lawyer, came across the name, "A Swindler, Attorney-at-Law." The peculiarity of the name led him to interview the man. He engaged him. On further acquaintance he asked him: "Why don't you write your entire name? 'A Swindler' is so queer." "Well, I thought that A would be better than Adam, and that is my name."

His hand neared hers, he whispered low,
  She heaved a little sigh,
And gently put her hand in his—
  "Fares, please," she'd heard him cry.

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**A White Rose Joker**

A practical joker inserted this advertisement in a morning paper published in Paris:—

"A wealthy gentleman wishes to meet a lady with a view to matrimony. Means not essential.—Address ———"

This was followed a day or two later by another notice:—

"A lady with a large fortune wishes to become acquainted with a gentleman with a view to matrimony. Means a secondary consideration.—Address———"

The joker received in all about one hundred and fifty replies, and he answered by letter in these terms:

"Will you meet me at two o'clock on Sunday afternoon next at the Cafe ——, Place de la Bourse? Please wear a white rose."

The joker's next move was to write to M. Lepine, the head of the police, subscribing himself "Un Bon Republicain":—

"A Royalist demonstration is to take place at two o'clock on Sunday afternoon next in the Place de la Bourse. The Royalists can be identified by a white rose, which each will wear."

On the Sunday following, at two o'clock in the afternoon, the approaches to the Place de la Bourse were obstructed with carriages, motor cars and taxicabs. The "fare" in each case was decorated with a white rose. Soon the coachmen and drivers were within measurable distance of coming to blows, while four political agents of the police who were present took notes and kept the demonstrators under surveillance. Gradually, however, the truth leaked out. For the most part the victims made the best of the situation, but one or two testy old gentlemen and a few peevish ladies betook themselves to the Police Commissioner to lodge a complaint. The Commissioner, however, greatly annoyed himself, gave them scant attention.

**Playing with Fire**

He was visiting a charming young society lady, and as they sat on either side of the blazing fire there entered his heart a burning desire to say something not merely complimentary, but brilliantly suggestive.

So, after revolving the matter in his mind during a ten-minutes' burst of silence, he said:—

"Ah, Mill Lilian, why are those fire-tongs so like —like your Frederick?"

Of course, he meant her to give it up, and then he would say: "Because they glow in your service," or "Because they are prostrate at your feet," or perhaps something even better.

But Miss Lilian did not give it up. Looking so solemnly demure that the clock almost stopped, she inquired:—

"Is it because they have two thin legs anad a brass head?"

Then followed another burst of silence, which lasted until the tea came up.

# "Amphibia"

Waterproof

# Leather Belting

is made to do hard work in a wet place better than any other Belt. Let us prove it to you by sending a Belt on trial.

We always carry a full stock of all kinds of Leather Belting.

## Sadler & Haworth

Montreal - Toronto

The New Slow Speed

# Sheldon Exhaust Fan

**The Fan that is revolutionizing the Shaving Exhaust Business**

It will handle wet or dry, long or short shavings and sawdust, and will do this work with a guaranteed reduction in speed of from 25 to 40% less and with a power consumption of 20 to 35% less, than any other exhaust fan. The Casing is very similar to that formerly used, but the wheel is of an entirely different design.

**Let us tell you more about it**

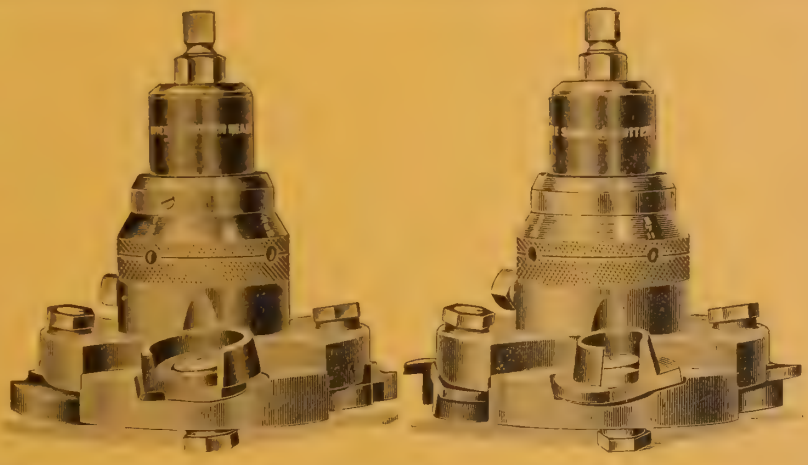
## SHELDONS LIMITED - Galt, Can.

# FOR GOOD RESULTS AND FOR SAFETY

CUTTER HEADS MUST BE MADE WITH CARE AND OF THE BEST MATERIALS.

### The Shimer Cutter Heads Solid Steel Forged

Sustain with safety the heavy strains of the great fast feeding machines. They are made of steel of 60,000 pounds tensible strength, forged to shape under a powerful steam hammer They are then drilled, reamed and turned to exact size to fit the machine for which they were ordered, making tools that are perfectly safe and that will not tear out or elongate at the bolt holes.



**Our guarantee for strength and maintenance of bit seats is based on the quality of metal we use and on our mode of construction.**

**The Shimer Cutter Heads with Expansion** are made in two forged sections. The top section carries the lower series of Bits and is made to slide over the lower section, which carries the upper Bits, and interlocks perfectly in the construction of a single Expansion Head. This mode of construction allows the Bits to be set and reset for tight and loose fitting of tongue in groove without disturbing the alignment cut of the side heads with the surface cut of the cylinder. It also adds strength to the Head, in that when the lightest work is being done the heads are expanded and when the heavy work is done they are closed up.

If you contemptate adding a fast feeding machine to your equipment, or of speeding up any of the old ones, it will be to your interest to consult our catalogue or write us.

**SEE THAT YOU GET THE GENUINE.**—Look for the NAME and TRADE MARK "The Shimer Cutter Head" stamped on every Head we turn out. A dealer who would sell you an imitation means to deceive you—send them back and demand the genuine article with our guarantee for your protection.

**Branch of Milton, Pa.** Samuel J. Shimer & Sons, **Galt, Ontario, Can.**

Under the influence of a Whitney Planer a good operator never fails to extend himself, and he is at ease in doing it.

Knurly, knotty, cross grained, warped, twisted, hard or soft lumber is all one to a Whitney Planer. It takes all as it comes and delivers it as smoothly surfaced as it is possible for a machine to produce. Quality varies, but we are prepared to give you more than an approximate figure on the output of a Whitney Planer, either a single or a double surfacer. Write

# Baxter D. Whitney & Son

**Winchendon, Mass.**

WYSONG & MILES CO., Greensboro, N. C.
Agents for Virginia, North and South Carolina, Georgia, Florida and Eastern Tennessee

Pacific Coast Sales Department,
H. H. PLUMMER, Manager,
Pacific Building, Seattle, Wash.

HENRY KELLEY & CO.
26 Pall Mall
Manchester, England

# CANADIAN WOODWORKER

Vol. 9 Toronto. May, 1911 No. 5

RACINE

## Shaper Guards

Proect the Operator and
SAVE DAMAGE SUITS

Endorsed and recommended by all Factory Inspectors.

Write for Prices and full Particulars, Free

**Fair Mfg. Co., Racine, Wis.**
BOX E.

## Lightning Cut-Off Saw

TO PRODUCE MORE WORK, TO INCREASE PROFITS
We suggest our Lightning Cut-Off saw. Is self contained. Feed semi automatic. Saw mandrill runs in self oiling bearings.

*Write us for particulars and price*

**THE SOUTHAMPTON IRON WORKS**
Southampton, Ont.

From

## Nova Scotia to British Columbia

**Burton's** Saws are to be found in Mills, large and small.

We can tell you, or show you, good reasons, for this wide-spread sale.

Ask the Millman down street what he thinks of our saws, and if he is a user, he'll prove to be our best salesman.

Let us send you some facts about saws in general, and Burton's Saws in particular.

**THE A. J. BURTON SAW CO. Limited, VANCOUVER, B.C.**

# "Amphibia"

**Waterproof**

# Leather Belting

is made to do hard work in a wet place better than any other Belt. Let us prove it to you by sending a Belt on trial.

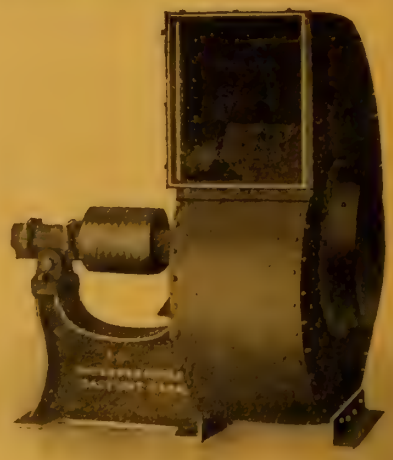
We always carry a full stock of all kinds of Leather Belting.

## Sadler & Haworth

**Montreal - Toronto**

**The New Slow Speed**

# Sheldon Exhaust Fan

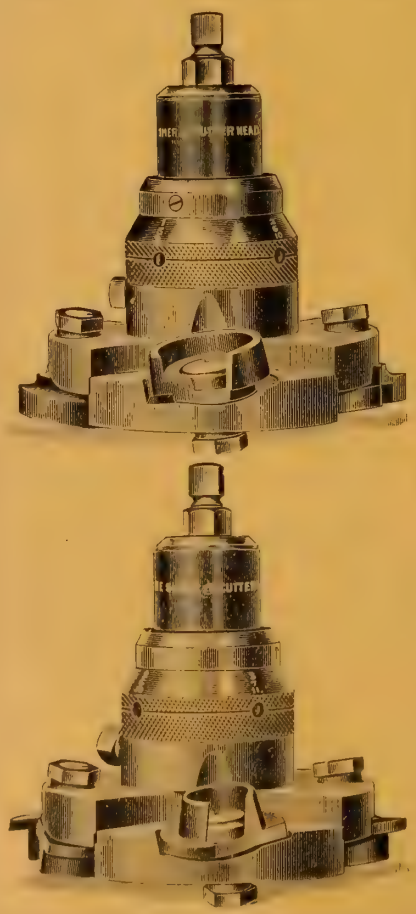


**The Fan that is revolutionizing the Shaving Exhaust Business**

It will handle wet or dry, long or short shavings and sawdust, and will do this work with a guaranteed reduction in speed of from 25% to 40% less and with a power consumption of 20% to 35% less, than any other exhaust fan. The Casing is very similar to that formerly used, but the wheel is of an entirely different design.

**Let us tell you more about it**

## SHELDONS LIMITED - Galt, Can.



# Interchangeable Planing Mill Tools

## We Can Supply Your Needs

in Cutter Heads or Special Cutters and at the same time save you money. Send us diagrams and specifications of the patterns you find the most difficult to file to shape in tongue and groove work, Door and Sash Mouldings, Sidings or anything in the planing mill line. We will design Bits that will cut these patterns more accurately, that will cut better and faster, especially in cross-grained and knotty lumber—and you won't need to file them to shape at each and every sharpening. We put the desired shape permanently into the contours of the Bits and as long as there is a piece of the Bit left it will cut the exact pattern it did when new.

This advertisement illustrates one of the many styles in which the Shimer Cutter Heads are manufactured. Our catalogue shows a large variety of Circular Bit Heads, both solid and expansion; Square Heads for special purpose, and Combination Heads with changeable Bits for the smaller mills. They are all made in the same perfect manner and fitted to the work for which they are purchased.

We have also adapted the Shimer Cutter Heads to very many special purposes and our fireproof vaults contain samples and templets of a large variety of special work, all of which has given us valuable experience in designing and shaping tools for odd work.

Thirty days trial given on any Shimer Cutter Heads we make, so what is to hinder your giving measurements and order to-day?

The dealer who accepts your order for the Shimer Cutter Head and supplies you with another means to deceive you in no small matter. Look for the Name and Trade Mark "The Shimer Cutter Head" stamped on every genuine tool. Any other is spurious—send it back—demand the genuine, of quality and helpfulness, with a record of 40 years of upbuilding and improvement. It costs no more.

ADDRESS:

## Samuel J. Shimer & Sons,

**Branch of Milton, Pa. - Galt, Ontario, Can.**

No. 281 Ball-Bearing Cut-off Saw. Capacity for Material up to 21-in. wide, 1-in. thick or 16-in. wide, 3-in. thick.

# Throw Out Your Old "Man Killer"

Put in our New No. 281—The lightest running and quickest acting cut-off saw on the market for use in furniture factories, cabinet shops, etc.—a machine that will increase the efficiency of your plant. The initial cost is not much and will be more than made up in a short time by the increased output.

JUST a word about this cut-off saw—the carriage is on frictionless steel balls running in planed ways and spring bumpers start the carriage on a quick return, making it the easiest-running cut-off saw to be had. A man can run this machine ten hours every day without tiring—something impossible on the old roller-style machines.

For quick and accurate work on light stock—the machine is in a class by itself. It will cut your labor and power bills for for this kind of work in half.

You have to push this table to appreciate the difference. Let us put one into your plant. If it don't back up what we say—send it back

Write for large illustrated circular.

## J. A. FAY & EGAN Company

Mfrs. of Wood-Working Machinery. 153-173 W. Front St., Cincinnati, O.

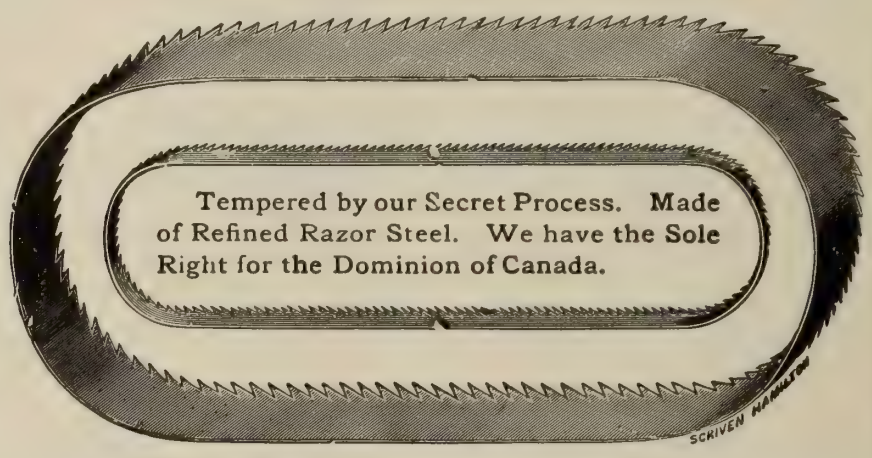
Sales Offices: St. Louis, New York City, Buffalo, Chicago, Evansville, New Orleans, Baltimore, Atlanta, Detroit. San Francisco, Los Angeles, Seattle, Grand Rapids.

# Maple Leaf Saw Works

**Shurly & Dietrich, Props.** **GALT, Ont.**

LARGEST SAW MANUFACTURERS UNDER THE BRITISH FLAG

We manufacture Circular Saws Gang Saws Mill Saws Band Saws Cross Cut Saws Buck Saws Saw Setts etc.



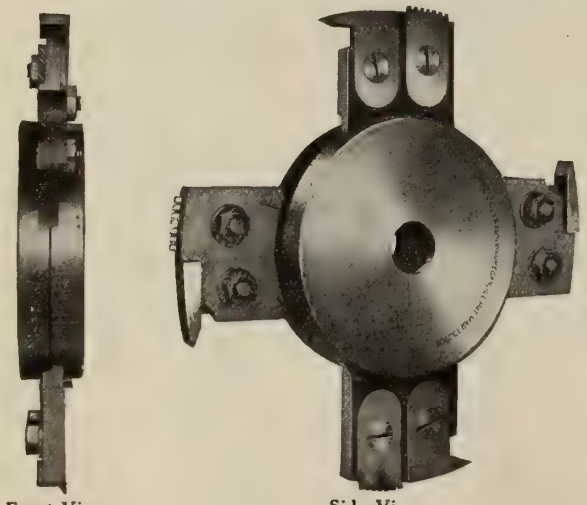

**"Maple Leaf" Saws** are the best-tempered saws made

We manufacture high-grade **Band Saws** of all Widths and Lengths

These Saws are made of Refined Razor Steel, and Tempered by our Secret Process; for Fine Finish and Temper are not excelled.

We are the only manufacturers in the world who export Saws in large quantities to the United States

## A Matter of Adjustment



Front View Side View

**THE Hall Adjustable Dado or Grooving Head**

adjusts to the fineness of 1/64 of an inch and can be adjusted for any size groove within the scope of the Cutter in half a minute.

These adjustable features are peculier to the "Hall" and are entirely novel

There is no manipulation of bolts, screws, washers or nuts in making the adjustment, which means there is nothing to work loose.

Our Booklet C. 2 will prove interesting reading and will give you a full description of the Hall Cutter-head suited to your needs.

**The Pamphlet is free—just ask.**

**Write us for prices on other machinery**

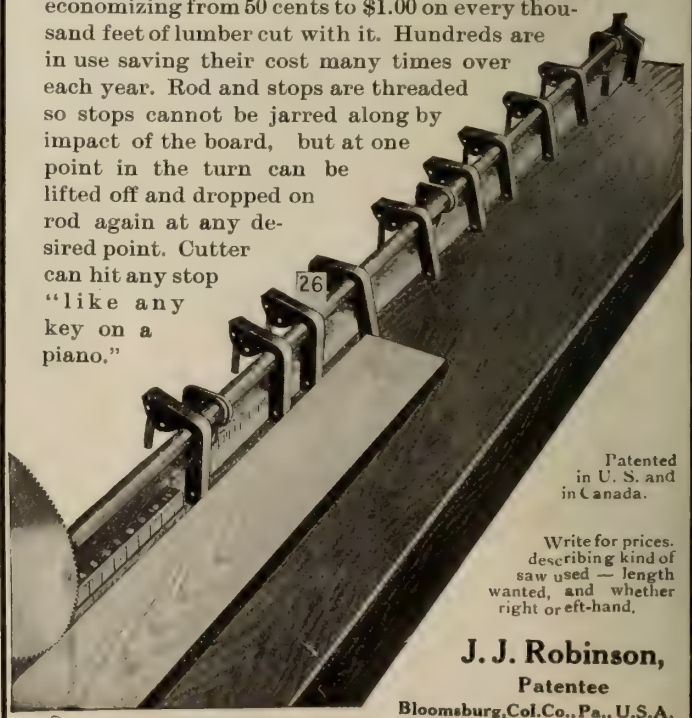
**Hall Cutter-Head Company, Incorporated**

Factory, Waukegan, Illinois 303 Trude Building, CHICAGO, U.S.A.

LIVE AGENT WANTED

## Robinson Improved Saw Gage

**Made in Canada**—Saving Duty and U. S. Freights for Canadian Purchasers. Sent on 30 days Free Trial. If not entirely satisfactory, send it back at our expense. This Gage will save Time, Material and Mistakes, thus economizing from 50 cents to $1.00 on every thousand feet of lumber cut with it. Hundreds are in use saving their cost many times over each year. Rod and stops are threaded so stops cannot be jarred along by impact of the board, but at one point in the turn can be lifted off and dropped on rod again at any desired point. Cutter can hit any stop "like any key on a piano."




Patented in U. S. and in Canada.

Write for prices, describing kind of saw used — length wanted, and whether right or left-hand.

**J. J. Robinson,**

**Patentee**

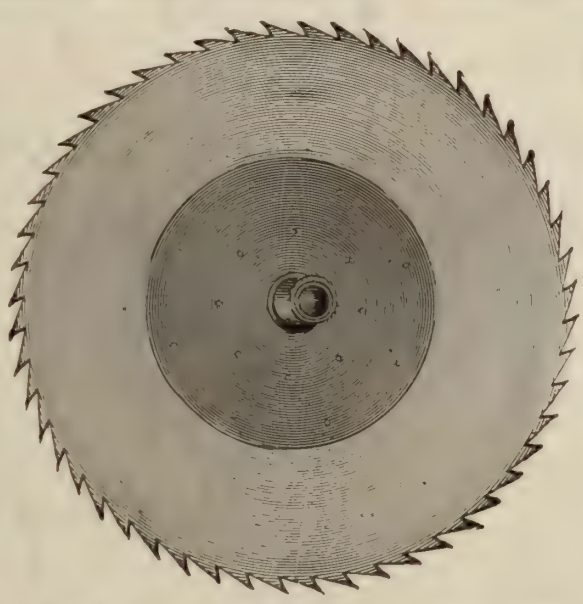
Bloomsburg, Col. Co., Pa., U.S.A.

# R. H. Smith Co., Limited

## St. Catharines, Ontario

MANUFACTURERS OF THE CELEBRATED "GOLD COIN" SAWS

**We make**
**Inserted Tooth**
**Saws,**
**Shingle Saws,**
**Cross Cut Saws,**
**Hand Saws,**
**etc., etc.**

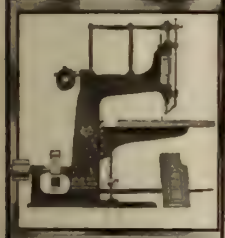


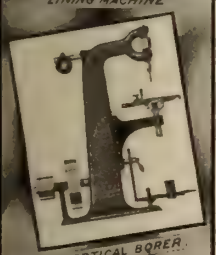
**We make every kind of Saw required in Saw Mills, Planing Mills, Furniture Factories, Piano Factories, Carriage Factories, etc., etc.**

We have been manufacturing for the Canadian trade since 1855, and have maintained the same high standard of excellence. Let us know your saw requirements.

# WOOD WORKING MACHINERY

VALLEY CITY MACHINE WORKS GRAND RAPIDS MICH. U.S.A.

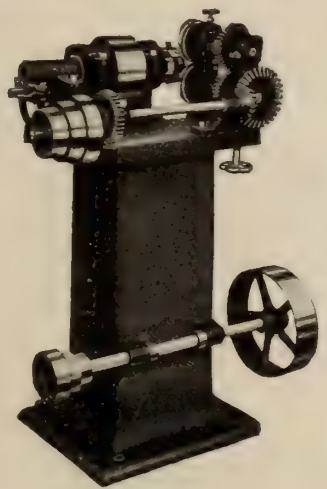

LINING MACHINE


VERTICAL BORER

DOWEL MACHINE

CARVER

## Latest Impoved Dowel Machine



*Work up Your Waste*

*Three Rates of Speed*

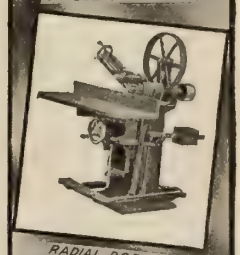
¶ Has an expansion sleeve for variable stock and is designed for turning dowels 3/16 to 1¼" diameter any length from 4½" up.

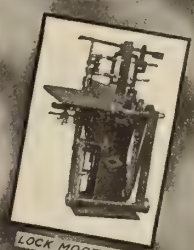
*Write for Further Particulars.*

## Valley City Machine Works

16 Campau Street — — GRAND RAPIDS, MICH.

SINGLE SURFACER

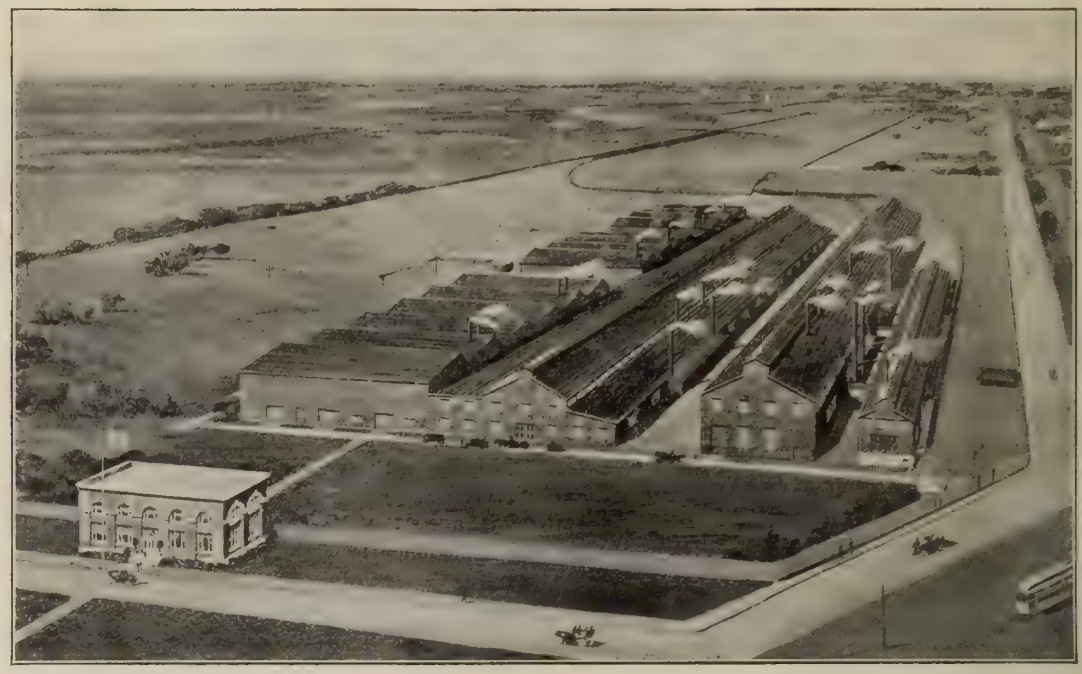

RADIAL BORER


LOCK MORTISER

WOOD LATHE

# New Simonds Steel Mill

**A Complete New Steel Mill for Simonds Saws has been built and is now in operation at Lockport, N.Y.**



**Simonds Saw orders for the spring of 1911 will not be delayed in the least because of any lack of steel. The new mill settles that question.**

**Simonds Saws made from Simonds Steel are now up to the highest known standard of material in the steel from which they are constructed. The Lockport mill is to make this special grade of saw steel almost exclusively, and it is only for use in the manufacture of Simonds Saws.**

"Go find a suitable location and build an entirely new Simonds Steel plant," was the startling suggestion offered by a director of the Simonds Manufacturing Company when the subject of "service" was being discussed in a meeting, one day last spring.

Simonds Saws were selling faster than they could be made and delivered satisfactorily. The trouble was with the amount of steel being made by the original mill. The three factories, Fitchburg, Mass., Chicago, Ill., and Montreal, Que., could make the goods all right, but they couldn't get enough of our own high grade crucible steel, which is the only kind that will be put in Simonds Saws.

The problem had to be met. The suggestion of the director proved the best solution. Plans were at once made for a new mill. Lockport, N.Y., was selected as the location. Work of construction began early in the summer. The first steel was rolled Monday, January 2nd, 1911.

Briefly, that is the story of one of the biggest tasks ever accomplished by a Saw manufacturer. A more detailed account would tell of the months of strenuous work, getting men and materials on the grounds at Lockport; inspecting and passing the materials purchased for construction; and the constant pushing of construction work. Today the buildings are up as planned, the machinery is installed, and everything is being rounded out in the most convenient shape.

The accompanying illustration gives a view of the outside of the Simonds Steel Mill. Fourteen acres of land are covered by the buildings and immediate yards; and in all there are eighty acres of land here belonging to the Simonds Company.

The special saw steel properties which Simonds Steel possesses is primarily the result of using, in the first place, the right mixture for Steel making. Our principal reason for embarking in the steel business eleven years ago was on account of our not being able to buy from existing mills a uniform steel with a guaranteed mixture made to our specifications. Simonds steel is made according to a secret formula that is not elsewhere duplicated. Nothing that bears the name of "Simonds" has ever been made from anything but the very best of materials and in a crucible furnace.

Uniformity — uniformly good—is our constant watchword. Careful chemical analysis is made on every heat turned out of the mill. The physical properties of the steel are also tested out. We know of no other steel mill in the United States that is so thorough as the Simonds Lockport mill in the testing of steel.

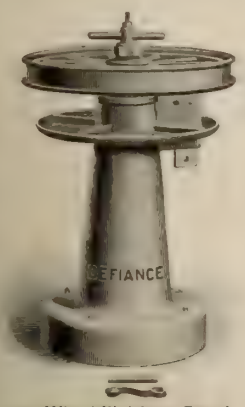
The machinery of the Lockport mill is thoroughly modern. All that is latest and most up-to-date in scientific crucible steel making is made use of here. New machinery and new methods enable us at once to double our former steel production. The mill is entirely electrically equipped. Electric current is brought on high voltage wires direct from generators at Niagara Falls.

When the difficulties of making Saw Steel are fully realized it will at once be seen why we do not go into the open market and buy any old steel for the making of Simonds Saws. Our satisfaction never stops short of a Saw that will satisfy the most exacting mill man. So, making our own Simonds Steel is a necessity to maintain the quality which has put and will keep Simonds Band, Circular, Cross-Cut and Hand Saws in the leading position which they now occupy.

The increase of our steel-making ability which the new Lockport mill brings to us is an excellent investment, the benefits of which will be enjoyed wherever Carpenters use Hand Saws or Mill and Lumber men use Mill Saws.

## SIMONDS CANADA SAW CO., LIMITED

**Montreal, Que.** **St. John, N.B.** **Vancouver, B.C.**



Auto Wheel Finishing Stand

Quality is remembered long after the first cost of any article.

# "Defiance Woodworking Machines"

represent a quality unknown only to those using machines of inferior manufacture.

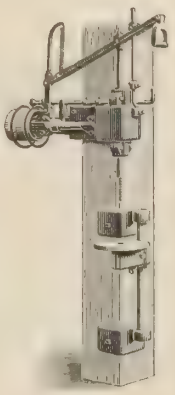
Our tools are strong and well made for the accurate production of Hubs, Spokes, Rims, Wagon, Carriage, Automobile and **Heavy Auto Truck** Wheels, Wagons, Carriages, Shafts, Poles, Neck Yokes, Single Trees, Barrel Hoops, Handles of every description. Spools, Bobbins, Insulator Pins, Chair and Table Legs, Balusters, Newel Posts, Golf and Hockey Sticks, Shoe Lasts, Gun Stocks, Oval Wood Dishes and for **General Woodwork.**

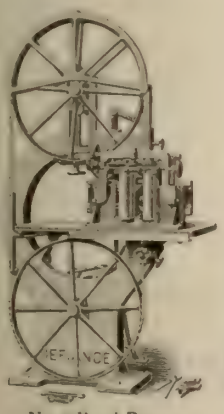
**Designed, Built, Patented and Guaranteed by**

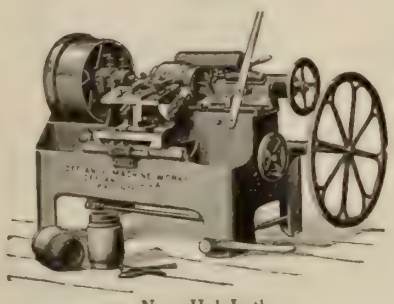
## The Defiance Machine Works,

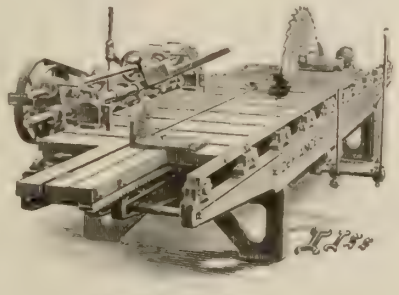
**Defiance, Ohio, U.S.A.**

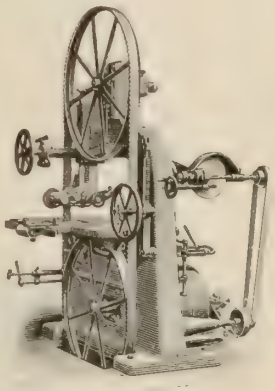
Ask for our new 535 page Catalog  Write for detailed Quotations

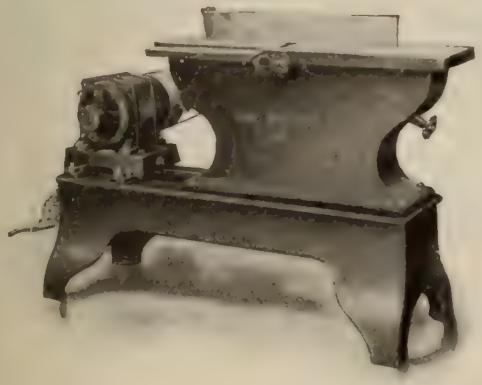

No. 15 Post Borer


No. 6 Band Re-saw


No. 1 Hub Lathe


No 6 Bolting Saw


No. 4 Band Rip Saw



"The Porter" Jr. 5" Bench Jointer is ideal in any place where work within its capacity is done.

We equip them to your order with Square or Safety Cylinder, with or without Bench, and with or without Motor.

There is a **reason** why we ship so many of "The Porter" machines into Canada. They are **Quality** machines at **reasonable** prices.

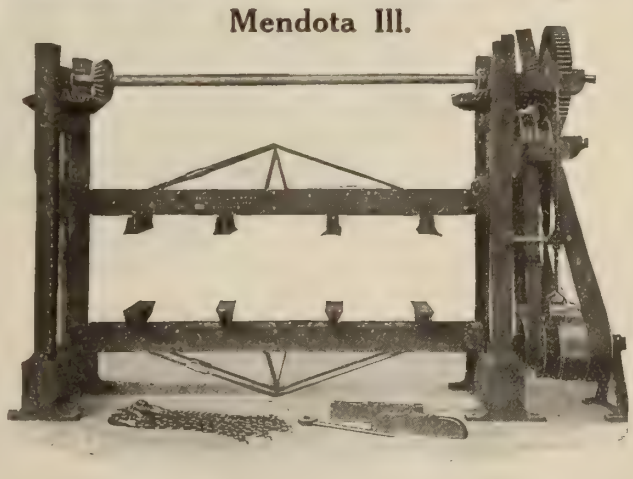
Our catalog J may be of good service to you. Send for it.

## C. O. Porter Machinery Co.,

**Grand Rapids, - Mich.**

## Black Bros. Machinery Co.

**Mendota Ill.**



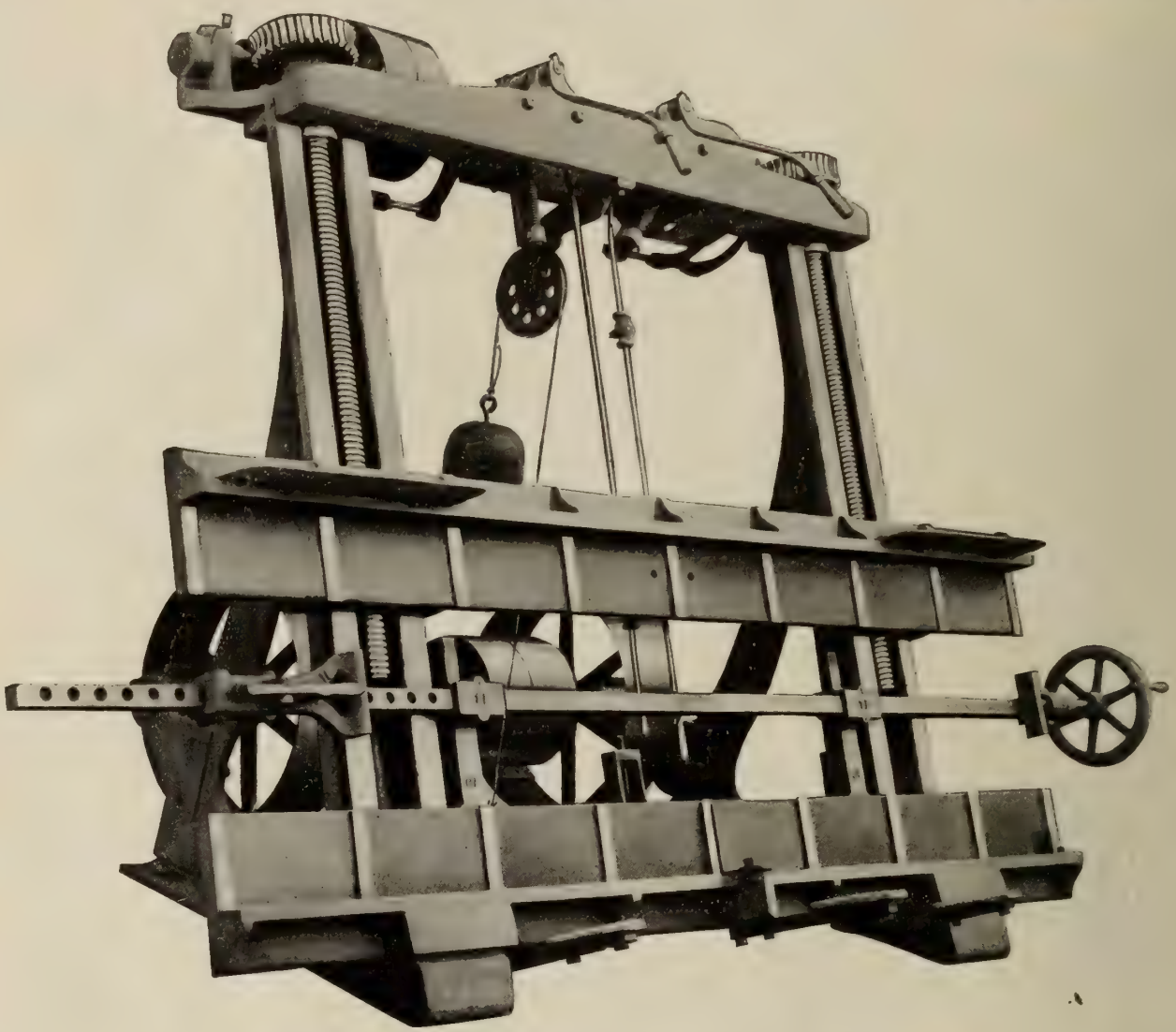
## A Veneer Press with a Reputation

We would like to give you particulars of this machine, because we can show you increased production and a better finished job. :: :: :: :: ::

**Better let us send you a folder about our Veneer Presses**

# Canada Machinery Corporation

GALT Limited



**No. 520 Upright Automatic Door Clamp.**

This is a massive, powerful machine, of great capacity, and particularly adapted to dowel doors or blind mortice doors, heavy or light, hard or soft wood, as the pressure can be regulated according to requirements and class of work.

# Canada Machinery Corporation

GALT, ONTARIO Limited

# Canadian Woodworker

**Canada's Only Woodworking Paper**

Published in the interests of Planing Mills, Saw Mills, Furniture and Piano Factories, Implement and Carriage Works, Boxmakers and Coopers.

The Circulation extends from the Atlantic to the Pacific and covers thoroughly all classes of Woodworkers in this immense territory.

**Wooodworker Publishing Co., Limited**

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**111 Mail Building, Toronto, Canada**
United States: E. J. MACINTYRE, 4057 Perry St., Chicago.

SUBSCRIPTION RATE.

Canada, United States, $1.00; Great Britain, Australia and other countries 4s 6d., per year; other countries, $1.50. Advertising rates on request.

**Vol. 9 May , 1911 No. 5**


## Obituary

It is with deep regret that we note the death of Robert Young, a well known Toronto architect, son of Robert Young of the firm of Young & Company, Toronto.

Mr. Robert Malcolm Young, an architect of this city, and formerly sergeant-major of the Queen's Own Rifles Regiment, died at No. 20 Grove avenue on the morning of May 4th, following an illness of but five days. Mr. Young contracted pleuro-pneumonia, which developed from a cold, it is thought, and caused his death. He was 30 years of age.

Mr. Young was formerly associated with Harry Simpson, but for the past seven or eight months had been with the Dominion Radiator Company as consulting engineer.

## The Evolution of the Window Sash

During the past twelve months a number of trade journals have devoted much space to the above subject.

In the articles written suggestions have been made that some one take up the matter and give an account as to what kind of window sash was first made, and what influences most contributed in bringing about the many styles seen to-day.

On another page of this issue will be found an illustrated article dealing with the subject from the beginning.

## A Demand for All-Round Machine Hands

When business is slack in the mill the all-round machine hand is pretty sure of his job. The man who is expert only on some particular machine is laid off; thus the highly skilled machine hand, the man who is able to take care of and run any machine in the planing mill, is seldom looking for work. Indeed the job is more often seeking the man. As an evidence of this, we know of a man who lately signed a two-year contract on a straight salary basis, with other favorable conditions, such as hours of labor, etc.

The opportunities of becoming really skilled are not so good as they should be, so far at least as the machine hand is concerned, owing largely to the lack of a proper apprenticeship system. To-day a boy who starts work in a mill, especially if it is a large mill, will be put at a machine and allowed to stick at it until he becomes quite expert. By the time he has reached the age of 18 or 19 he may be receiving wages that he finds sufficient for his needs. If he is wise and possessed of a little ambition he will take a job at even a lower rate of pay in order to get a more general knowledge of the trade.

But the average young man keeps putting it off and the time soon comes when he finds that he is, or thinks he is, too old to make a change.

So it will be readily understood why the all-round machine hand is becoming so scarce.

Work in the planing mills is fast becoming specialized, and as there are but few machines, the output and care of which seem to warrant the paying of fairly high wages, the man with trained ability certainly stands the best chance of steady employment combined with high wages.

The manufacturers are not altogether to blame for the system of specializing. Cost of production has in a measure made it necessary to do so.

Now, the demand for men with a general knowledge is much greater than the supply, and is likely to remain so unless we go back to the old apprenticeship system. Manufacturers do not seem to favor this plan, being more inclined to co-operate with the boards of education with a view to the development of some system of manual training in the schools that will include the taking up of machine work. We sincerely hope this can be brought about, and in a manner satisfactory to all.

## The Export Trade

The manufacturers of Europe are already making preparations to be among the first to use the Panama Canal, upon its completion in the rush for the trade of the East which is sure to ensue.

Canadian manufacturers are also awake to the possibilities of building up a large export trade and are making an effort to get a share.

## "The Canadian Woodworkers" Offer to Subscribers

In order to bring about a freer exchange of ideas, we will give to any of our subscribers sending us articles of interest to the trade, "Part One or Part Two of "Mission Furniture and How to Make it."

For articles of between two and three hundred words, we shall be glad to give a copy of the book entitled "Popular Mechanics, Easy Ways to do Hard Things," etc.

These books are fully illustrated and give working drawings and details.

The articles must relate and be of interest to the bench or machine hand, also the polisher and finisher.

Any of the subjects mentioned may be taken up separately, or the writer may touch on all the interests if he desires to do so.

## Craftsmen Homes, by Gustave Stickley

"Craftsmen Homes" is an excellent book containing some splendid illustrations and plans, also cuts of craftsmen furniture.

Taken altogether it is a fine work and is bound in a very serviceable cover. Anyone interested in this line of work would do well to secure a copy. The book is now in its second edition.

## Canada's Trade Growing

Ottawa—Canada's trade for the present fiscal year bids fair to run close to the eight hundred million mark. For the first seven months it has increased at the rate of nearly ten millions per month, as compared with the corresponding months of last year. For October the increase was $10,602,364.

Imports and exports for the seven months totalled $433,297,034, an increase over last year of $66,489,552, or about 19 per cent.

Imports totalled $262,685,148, an increase of $58,010,756, or 27 per cent. Exports totalled $170,611,886, an increase of $8,468,006.

For October the imports amounted to $39,218,501, and the exports to $33,801,257, increases respectively of $7,744,541 and $2,857,823.

## Trade Inquiries

There have been received the following inquiries relating to Canadian trade. The names of the firms making these inquiries, with their addresses, can be obtained only by those especially interested in the respective commodities upon application to: "The Inquirer Branch, the Department of Trade and Commerce, Ottawa," or the Secretary of the Board of Trade at Brandon, Halifax, Montreal, St. John, Vancouver, Winnipeg.

Readers using these trade inquiries, when communicating with firms abroad who are advertising for agents in Canada, should not fail to forward references, particularly if they are bankers' references.

Please quote the reference number when requesting addrsses.

447. A Manchester firm asks for catalogues and prices of pastry rollers from Canadian manufacturers of same.

437. Office furniture—A Manchester firm is open to receive catalogues and prices of general office furniture from Canadian manufacturers.

424. Lumber manufacturers.—A London firm who are the patentees of a new system for profitably utilizing the waste products of the lumber industry, desires to enter into correspondence with Canadian lumber manufacturers who would be interested.

443. Brush handles—A Manchester firm desires to obtain catalogues and prices of brush handles from Canadian manufacturers of same.

441. File handles—A Manchester firm wishes to obtain catalogues and prices of file handles from Canadian manufacturers of same.

445.—A Manchester firm asks for catalogues of domestic woodenware from Canadian manufacturers.

440. Pastry boards.—A Manchester firm asks for samples and prices of pastry boards from Canadian manufacturers of same.

438. Solid cotton woven belting—A Manchester firm wishes to receive samples and prices of solid cotton woven belting from Canadian manufacturers.

459. A South African timber merchant mill owner and contractor desires to be placed in communication with Canadian manufacturers and exporters of the following kinds of lumber: poplar, pine boards and sheeting, spruce deals, red Baltic clear pine, Oregon pine, and pitch pine, etc.

463. Lumber—A South African firm of commission agents desire to be placed in communication with Canadian manufacturers and exporters of spruce deals and spruce deal ends, pine boards and planks suitable for shelving and inside finish for stores, dwellings, etc.

468. Picture frame moulding—Canadian manufacturers of picture frame moulding should communicate with a Trinidad firm in the picture framing business.

478. Furniture—A Trinidad firm handling furniture invites correspondence and catalogues and price lists from Canadian furniture manufacturers.

## The Force of Lightning

Frequently surprise is expressed at the effect of a stroke of lightning which splinters a large tree or wrecks a tall chimney, but if the enormous power developed by an ordinary stroke of lightning is taken into consideration the wonder will be that the effect is so small.

Scientists estimate that an "ordinary" stroke of lightning is of 50,000 horsepower. That is fore cuffi-cient to drive the largest battleship ever built at top speed. The lightning stroke, however, travels at a speed of 186,000 miles per second. We think we see a flash of lightning, but, as a matter of fact, what we see is only the memory of a flash. The electrical current has been absorbed by the earth long before we are conscious of having seen the flash. A person struck by a direct flash would never see it.

The average electromotive force of a "bolt" of lightning is about 3,500,000 volts, and the current is 14,000,000 amperes. In such a "bolt" there is energy equal to 2,150,000 volts, or 3,284,182 horsepower. Some day a wizard will arise who will capture and bind a "bolt" of lightning and with it turn all the wheels of a great city.

The time required for the discharge of a "bolt" of lightning is about one twenty-thousandth of a second.

# Planing and Saw Mill

## "Window Sash"—Past and Present

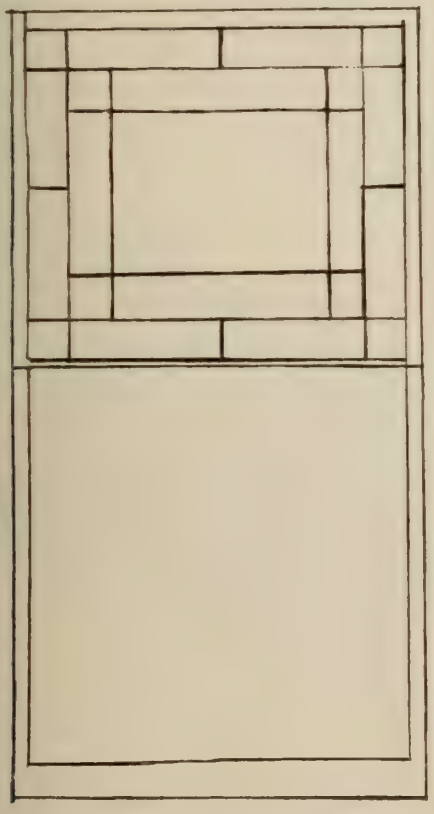
Richard Pearce.

It's a long way back to the time when glass was first used for the purpose of admitting light into buildings.

The architects and sash makers of those early days had to confine themselves to the size and price of the glass to be had.

The first output of the glass factories was in sizes of 4 x 6 inches, usually placed in the sash diamond fashion, termed leaded lights.

It is interesting to note that many years ago, in England, we cannot say as to any other country, six windows only were allowed free in one house; all over that number were taxed at the rate of about five dollars per year each. When this tax was imposed many of the dwellings had as many as 50 windows, small,



Margin Light Sash, an Enlargement on the Queen Anne
Designed by R. Pearce

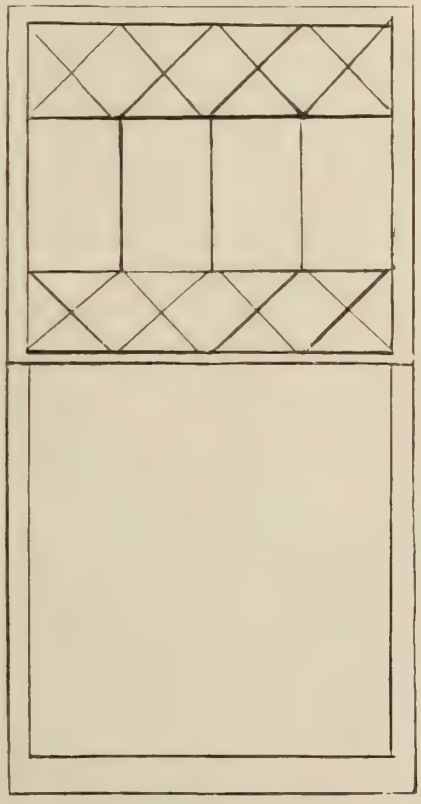
of course, as glass was very dear. Some of the owners, rather than pay, had the openings stoned or bricked in. The first sash made was the casement, single and in pairs, also the French window.

These were followed by the meeting rail or lifting sash, made 12 lights, 7 x 9 inches, mostly square head, but the Gothic and circle head were used when the architecture of the house called for that style.

About 60 years ago the price of window glass was 60 cents per square foot. But the glass makers were continually improving their methods, and soon began to make 12 x 24—up to 18 x 36. It then became the custom to make 4-light sash for the front part of the house. Along about this time the old style of leaded light sash gave way to the 12 and 4 lights for house and factory use; but continued to be used and is still to be seen in churches built up to the present.

The first real changes in the style of window sash was not, we think, brought about by mere chance, neither was it, we make bold to say, some new idea put into effect by the architect or builder. The credit must be given to the lady who, in order to show to better advantage her Battenburg lace curtains, had the bars in the bottom sash taken out.

This gradually led up to the 2-light sash. Many sash are seen to-day with the check rail off the centre.



Diamond Light Sash
Desinged by R. Pearce

Or, in other words, the bottom glass is much larger than the top. This style of sash is termed cottage window.

We present herewith illustrations of two styles of window sash; the size is the same, but note what a difference the arrangement of the bars make in their appearance. This style of sash would present a pleasing effect in an oriel bay window.

Some men in the business do not care to make fancy sash, claiming that the profit is too small.

Speaking from experience, we think that any sash and door manufacturer who has a shaper and an adjustible mitre machine can make just as large a margin of profit in handling the fancy as he can in making the regular two and four light stock styles.

### How to Make the Sashes Shown.

In laying out the diamond light sash, make a full size drawing. This will give you the correct bevel. If possible, get a square bevel mark on the stiles, bars

and rails the exact spot where the bars are to be placed. In making some styles of diamond light sash, the bars must be placed before the sash is cramped up. We mention this as we know of instances where the sash had to be taken apart in order to get the bars in place. When nailing, don't set the nails until all the bars are fitted.

Some men get into the swing of doing this kind of work very quickly, and like it, while other men, even after months of practice, seem to be unable to make the headway they should, and the reason can usually be traced to the fact that they did not start right.

If you start right you will finish right.

Looking over my record back, I find that some men have done the work in 25 per cent. less time than others, the style of sash and all the conditions being exactly the same excepting that the fast men started right.

The margin light sash we illustrate can be made in much less time than the diamond light sash. But careful attention must be paid to the laying out and maching, otherwise trouble will be experienced in cramping up. When laying out, use a knife£ it is better than a pencil. Special machinery can be had for the making of artistic window sash. And we advise anyone who may be desirous of building up a trade in this line to install a set.

A continuation of this article will be in the June issue.

## Modern Lumber Plant

**Description of New Industry in Vancouver, erected by John Hanbury**

Vancouver, B. C.—A half million dollar plant, emitting a thousand doors a day, has risen within the last few months at the corner of Fourth avenue and Granville street, and the machinery is the most modern in the world.

The owner is John Hanbury, who, if he lived under a star-spangled flag, would be described as a "lumber king" or a "timber emperor," but being a common, everyday Canadian, is known merely as a business man who is doing things—things, it is true, on rather a big scale.

Mr. Hanbury has two large mills in the Crow's Nest country and another at Brandon, and he began with a diminutive concern on the site of the spacious enterprise that now occupies a commanding position on the south side of False Creek. The gigantic rough logs brought in float from the shores of Vancouver Island by busy tugs, are subjected to the most rapid process yet evolved by ingenious timber experts and engineers, and are made into doors ready for rapidly rising homes in Vancouver, or elsewhere, in less time than it takes the old fashioned plants to get started. The heavier machinery is driven by a turbine engine, while most of the cutting and more delicate apparatus are supplied each with their own motors, which eradicates the necessity for belting and other expensive devices. When the full plant is in operation, over 200 men will be employed, the greater number of whom will be white.

### Marvellous Dry Kiln.

One of the most interesting machines is a drying kiln that turns out the wood in good cutting condition in twelve hours instead of the usual three or four days. One of the time-miser contraptions—"miser" is the word, they save so much—has been recently installed at Eburne, and they are revolutionizing the interior economy of the lumber mills.

To the layman, a door factory, such as Mr. Hanbury's, induces uncanny astonishment. Wood comes sliding up from nowhere in particular on steel cogs and chains that are so deft in their manipulation of the heavy logs that they seem more than human in their skill. Every now and again in the course of the journey along the chains a saw, revolving at "unseeable" speed, lops a bit off, and pigs do not become sausages in Chicago more rapidly than forest monarchs are moulded into doors in one of Vancouver's modern factories.

A spur of the Great Northern brings the freight cars right to the door of the concern and it is practically one steady progress from the tide to the train, and thence to the consumer in all ports of the world.

## To Harden Files

To harden files dip each file in red hot lead, handle up. This gives a uniform heat and prevents warping. Run the file endwise back and forth in a box of salt water. Set the file in a vise and straighten it while still warm. Apply water to the part straightened until cold, and you have a good file.

## Babbitt Metal

The name of Isaac Babbitt is generally associated with the anti-friction metal which bears his name, but his greatest invention was not the "babbitt metal," but the accompanying process of using such a metal for the bearings of machines, or "babbitting." This process has had the widest influence on the development of high-speed machinery. Isaac Babbitt was an American, born in Taunton, Mass., July 26th, 1799; died May 26th, 1862. As a boy he was apprenticed to the goldsmiths' trade. In 1824 he founded the manufacture of britannia ware in the United States. In 1839 he discovered "babbitt" metal. The proportion of babbitted bearings used to-day compared with all other forms is something we cannot know, but it must be so great as to make the number of the others comparatively insignificant.

## Flexible Shafting in Woodworking Shops

A British firm is responsible for the application of flexible shafting to the woodworking trades, such as coach and motor car building, cabinet making, furniture, etc. The equipment can be easily modified to suit the particular requirements of any woodworking trade where rapid boring and screw turning are essential. The process is quite simple. The mechanism is complete in itself and can be driven from any existing shaft or can be made portable The essential part consists of three flexible shafts driven from one central gear wheel, though the number of these shafts can be increased as desired. It is claimed that with one of these equipments a man can accomplish ten times the work he can do by hand, and can do it more accurately and uniformly.

The lumber trade will shortly be called upon by Mr. G. H. Stevenson, representing the Kinsman Lumber Company, Limited. Mr. Stevenson is a cheerful young fellow, and we believe he will make many friends on his routes. We wish Mr. Stevenson much success in his work.

## Marvelous Electrical Device

New York City is to have a system of fire protection which will not only revolutionize all previous methods, but will make this the most thoroughly protected against fire of any city in the world.

The new system is styled the air alarm. Its basis consists of a small hollow wire of copper alloy, one-tighth of an inch in diameter and containing a tiny insulated wire.

The hollow wire acts as a conductor for the air, whose expansion causes a fire alarm to sound. The tiny wire is known as the trouble wire. If for any reason the hollow wire is cut or broken, the result is that an electric circuit is also broken, which causes the little wire to send a "trouble alarm" to the headquarters of the alarm company. Fire headquarters hears nothing, unless there happens to be a real fire at the time the wire breaks, or is cut.

### Detects Fire at Outbreak.

Loops of this inconspicuous hollow wire are strung around the moulding of the rooms, houses, tenements and buildings to be protected, the loops ending in a detector which consists of a disc, containing a delicate diaphragm.

If a fire starts in a room the air in the hollow tube expands under the influence of the heat and operates a sensitive diaphragm in the detector, causing it to close an electrical circuit, which sets in operation all the marvellous fire alarm machinery.

### New Power

London.—It is known here that in some hidden corner of the world an oil propelled battleship is now being built. Heretofore, all reports of the building of the battleship have been denied, but Dr. Diesel confirmed the rumors before the conference of naval architects yesterday. He said he was not at liberty to give details. Dr. Diesel is the inventor of an oil engine. He said that fully 250 ships, naval and commercial, are now fitted or are being fitted with oil engines.

# HIGH SPEED MACHINE WORK

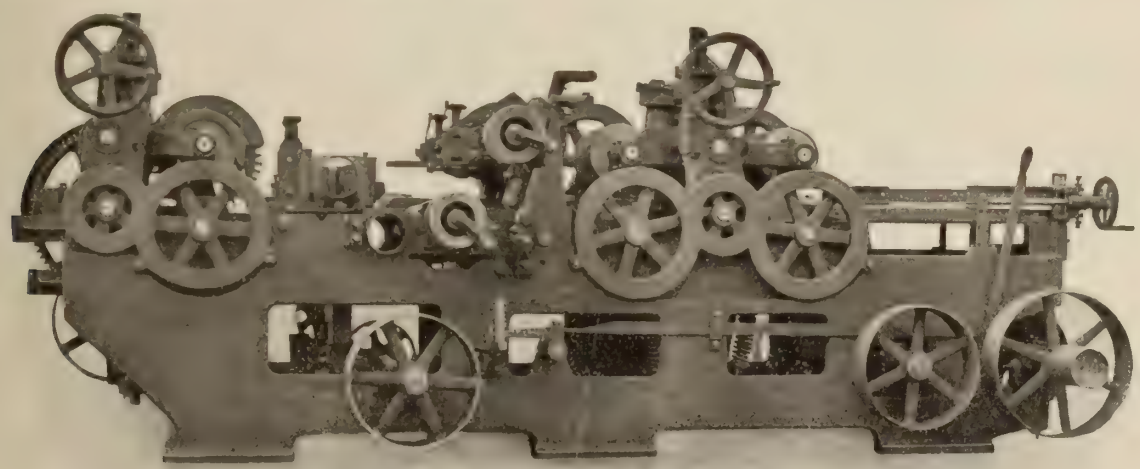
We saw a fine set of machines the other day for matching hardwood flooring. The speed was very fast —we did not take it, but we were informed that it was 80 to 100 feet per minute. At any rate, it was coming out at a merry clip. What struck us most was the scientific manner in which the stock was being prepared for shipment. Placed close to the end of the matcher was a trim saw and automatic end tenon machine.

As the flooring came through the matcher already bored by a special boring attachment, it was taken care of by the trim sawyer, who squared up the ends and cut out all bad spots. The trimmed pieces were then laid on a moving table close to the man in charge of the tenon machine.

Taking a piece of flooring in each hand, he put the end of one piece up to the grooving head at the same time he was passing the other piece up to the tenoning head, by a very rapid movement of the hands and a little quick side-stepping he exchanged the pieces from one hand to the other and the operation was repeated. The material was then baled up and made ready for shipment.

This is not only what is called high speed machine work, but is also high speed handling on the part of the men in charge. It keeps them right on the jump. Still, the men we have seen at this work seemed fully able to keep up to the speed set by the machines mentioned, namely, 80 to 100 feet per minute, and is in striking contrast to the speed of the matcher in use up to a few decades ago, and for that matter still in use in old fashioned mills to-day.

When the old slow speed machine was in general use the kid tailing a matcher had time to carry two or more pieces of flooring say 75 feet, place it carefully on the pile, and return to the machine in time to gather up two or three lengths that had come through. Also, he was entrusted with the care of keeping the machine clear of shavings. Conditions have changed, and at the present time high speed and fast feed woodworking machines are in great demand by the progressive mill man. That the manufacturers are fully alive to this fact is clearly evident, as they are giving much attention to it. Special knives are made so that even cross-grained maple can be run at the rate of 100 feet per minute.



A High Speed Double Cylinder Planer and Matcher
Shown by the courtesy of the Canada Machinery Corporation Limited

# The Carpenter and Builder

## One of the Signs

Fort Williams' building permits in April of 1910 were 14.40 per cent. more than they were in April, 1909. This is only one of the many signs that tell of the future hopes of those who live in the city at the head of Lake Superior, where the two great transcontinental railwsy of Canada are outlaying an expenditure of nearly thirty millions of dollars, in addition to the millions already invested here for terminal facilities. The Grand Trunk Pacific Railway is sending a large percentage of this, in order to complete the great yards, shops, elevators, coal docks and freight sheds, which that company has planned to erect on the banks of the Kaministiquia river and Mission river. The Dominion Government is expending over one million dollars this year on dredging and other harbor improvements in the rivers and bay, and the work planned by the department in order to make the harbor capable of accommodating the traffic that will inevitably be attracted to its wharves by the development of the west, will require an appropriation of as much or more each year, for seven or eight years to come.

## Like of Present Building Boom never seen Before

"There never was such a building boom in Toronto as that which is in full swing now," said City Architect McCallum in an interview recently. "Fifty plans came into our office one day recently. This is a record. Our staff can only give them the necessary attentions by working overitime, because each plan has to be inspected very carefully to check the architect's figures.

"The indications at present are that 1911 will be a season of unparalleled activity among the building trades of Toronto."

Reference to Mr. McCallum's last quarterly statement gives point to his remarks. The approximate value of the buildings for which permits were issued in March, 1911, was $1,583,165, while in March, 1911, it was $2,210,770, showing an increase of $627,605 for the single month.

## New Building Record

### Nearly Seven Millions is Total for Last Four Months

The value of building permits in Toronto for the first four months of the current year totalled almost $7,000,000 according to the statement issued by the city architect. This is almost a million and a half over the same period of last year.

The approximate value of building for the four months was $6,911,758, as compared with $5,647,748 for the same period last year.

The approximate value of buildings for the month was $3,272,818, while for April, 1910, it was $2,522,058.

There were 1,802 building permits issued for the four months as compared with 1,460 in the same period of last year.

The permits for April totalled 912, while those of a year ago were slightly in excess, being 950.

The number of new buildings erected during the time covered by the report was 2,506, as compared with 2,134 last year.

## Building a Bungalow

One would hardly think, that so simple and innocent appearing a structure as that modern, cozy little home known as the bungalow, would present many problems to one skilled in the art of planning. Ruskin says that "simplicity is the terminal point of all progress," and it is this very terminal point, complete simplicity, which is essential to appropriate and proper appearance in the bungalow, that is hard to get, and still fill exacting owner's requirements.

The first problem for a home builder to solve is whether or not he can really afford a bungalow. These little home, though simple, are sometimes quite expensive to build. Take, for example, the average six-room house, one and one-half and two storeys in height. Such a house can be built as small as 24 x 28 feet in size. It can be easily seen that placing all of the bed rooms, bath room, closets, etc., on the first floor, alongside of the regular first storey rooms, would practically double the first floor area of the house, which would mean twice as much roof to cover it, twice as much excavation for the basement, and 50 per cent. more basement wall as well as additional supports in the basement in the added part. The rooms in themselves cost practically the same as when placed in a two-storey house, and while there is a saving in the height of the chimney and sometimes a saving in the stairway when entirely omitted (which is seldom the case), it does not take much of a mathematician to figure out that a six-room bungalow would cost more than a storey and one-half or full storey six-room cottage. These facts have resulted in a new style of cottage known as the two-storey bungalow.

Properly speaking, the original bungalow is but one storey high, with a low roof, so low that there is only a small attic space under it. A two-storey bungalow is not unlike what we have heretofore called a storey and one-half cottage, the principal difference being that a low spreading effect is emphasized, giving it a bungalow appearance, but at the same time providing considerable space on the second floor for bed rooms. Dormers and low gables are used to the best advantage in obtaining light and air and increasing the size of the rooms.

Using a number of the attributes of regular bungalows such as wide brown stained siding or shingles laid in rustic fashion, with show rafters under the eaves, a broad porch of simple design, a large living room, bay windows and fireplace, a decided bungalow appearance can be given to what otherwise would pass for a storey and one-half cottage. A home designed in this fashion, while lacking the unquestioned convenience of a house all planned on one floor, can be built attractive, comfortable and at a less expense than a regular bungalow planned with the same number of rooms.

A low roof need not necessarily mean hot rooms in summer on the second floor. With proper planning the rooms can be made full height without any ceiling cut offs, and in addition to this, if they are well ven-

tilated it has not been noticed that they are any warmer in summer, or colder in winter, than the rooms in a straight two-storey house. The lower part of the roof is over the closet which comes in each corner in all bungalows of this style, and the plastered ceiling makes a small attic above each room, practically the same as found in a one-storey bungalow.

The one-storey bungalow to work well and be in every way practical, should only be built in a suburban location on a double lot, preferably a corner lot, so that the broad side of the building can be placed toward the front, the living rooms occupying the most desirable end, the sleeping rooms and bath room in the other end. When a bungalow is placed on a single lot, between two two-storey buildings, with the narrow end of the building toward the front, it has an insignificant look. The worst part of such arrangement is the necessity of placing all the bed chambers at the rear of the house, back among the neighbor's ash cans. The length of such a bungalow necessarily brings the rear of the house far behind the rear of neighboring two-storey houses. While it is sometimes argued that this fact brings the chambers back where there is more light and air, the air in this location, for obvious reasons, is not always conductive to health.

Where a few hundred dollars more or less in the construction of a home is not a vital matter, when the lot is of sufficient size to plan it properly, and when the location is appropriate for a one-storey bungalow, a bungalow is an ideal home, but when these conditions can not be combined when building, it is far better to build a home suited to one's lot and means, and then as a compromise, apply to it such bungalow features as may prove appropriate and attractive.

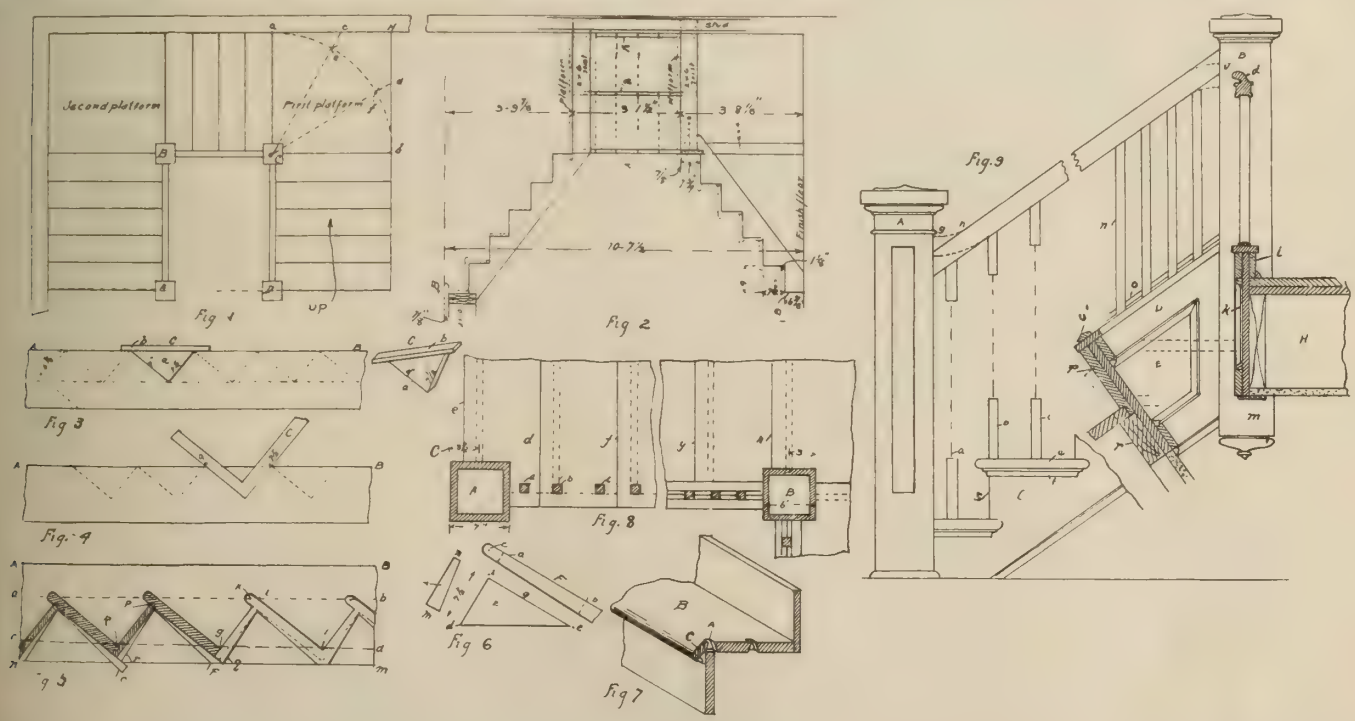
# GEOMETRICAL PROBLEMS

(Continued from April issue)

## Stair Work.

Fig. 1 shows half-turned platform stairs having two platforms and four newels, A-B-C-D.

Fig. 2 shows an elevation of fig. 1, having six risers to the first platform to the top landing B. You will notice three winders dotted in on the first platform. To lay out the windows take the centre of the newel C at O as a centre and O-a as a radius, describe an arc from a to b, with the same radius and b as a centre, describe an arc cutting a-b at c, with a as a centre and the same radius, describe an arc cutting the line a-b at f. By drawing lines from o through e and f until they intersect with the lines a-H and b-H, will give you the exact size of the winders. If you have

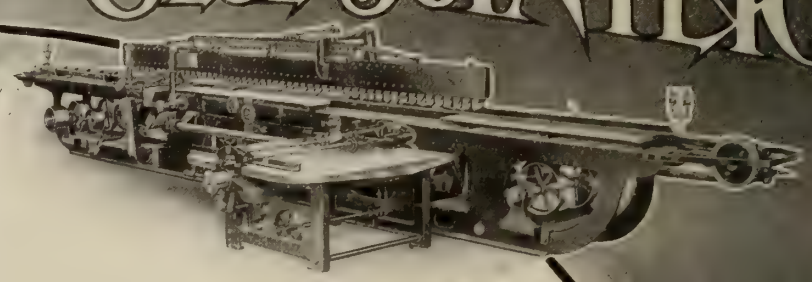



room on the rough floor it will be well to lay out the stairs the full size on the floor before building them. When laying out horses for stairs after the finished floor is laid, the first riser must be enough smaller to allow for the thickness of the tread. The stairs shown have a 7½-inch rise, the thickness of the tread is 1⅛-inch, the first cut of the rough horse must be 7½ inches less 1⅛ inches, or 6⅜ inches from the finished floor. If the finished floor is not laid, only the rough floor, then add the thickness of the finished floor to 6⅜ inches, or whatever the rise may be. The landing floor is ⅞-inch thick, then the rise next to the landing must be more than 7½ inches in the rough, as the tread is 1⅛ inches and the floor ⅞-inch there is a difference of ¼-inch. By making the rough floor riser next to the landing 7¾inches, the finished risers will all be the same height, 7½ inches each.

Fig. 3 shows how to lay off a stair horse by using a block for a pattern as shown at C. The block as shown at C is made the same size that the rise and the tread are to be. This block is cut for a 7½-inch rise and a 9-inch tread, as shown at a, the piece C is nailed on the block a and projects on each side about ½-inch, so that, when the block is laid on the timber as a C, the edge of the piece b will rest against the edge of the timber and the block a, which is the size of the step, will lay on top of the timber. Mark along the block a and move it along step by step and your steps will all be marked alike

Fig. 4 shows how to use the steel square in the same way as the block, but this takes more work to make it accurate.

# The Linderman Automatic Dovetail Glue Jointer



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## Linderman Automatic Dovetail Glue Jointer

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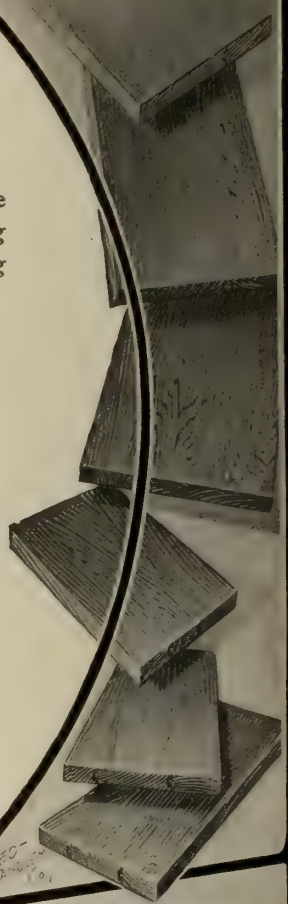

## Canadian Linderman Co., Ltd.

**Woodstock, Ont.**

**Muskegon, Mich.**

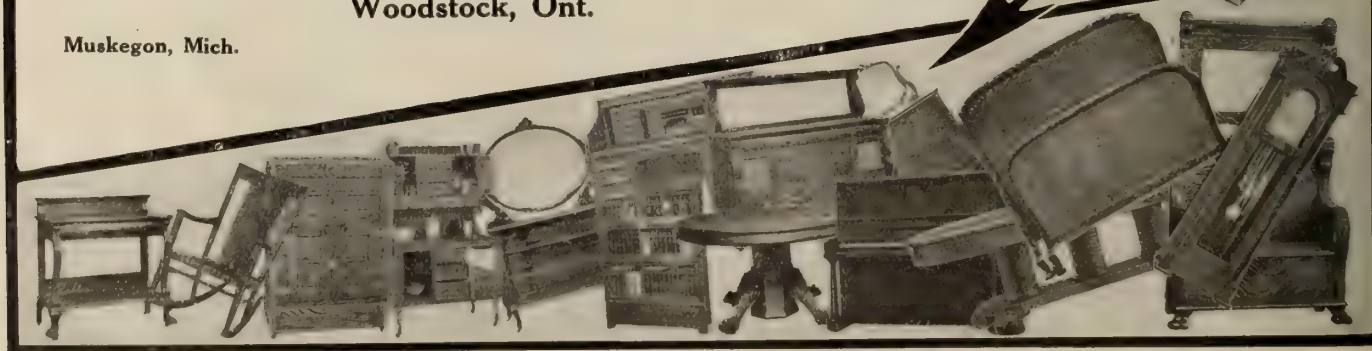

Fig. 5 shows a housed string, A-B being the top edge. Draw a gauge line at c-d parallel with A-B and about 10 inches from A for the line of intersection of the treads and risers. The distance from d to m should be about 2 inches to allow room for wedging the steps. Cut a pattern of the rise and tread as at E, Fig. 6, 7½-inch rise and 9-inch tread. Lay this pattern, so that the line d-e will be on a straight line with c-d, fig. 5, and mark the treads and risers as g-i-l-, etc. After you have the string laid out for the treads and risers, cut two more patterns as F and H. F represents the ends of the tread with allowance made for a wedge to be driven in as shown at o-p-q-r, etc., to hold the treads and risers in place. For all 1⅛-inch treads this pattern at b should be 2 inches wide and at a 1¼-inch, the projection beyond a is for the nosing, which is generally about 1¾-inch. Bore a hole at c for the centre of the rounded nosing. The pattern H is for the risers, allowance is also made for a wedge, for a ⅞-inch riser this pattern should be 1¾-inch at m and 1-inch at n. Now lay the pattern F on the side string as shown in fig. 5, so that the point b will be even with the point l, and the top edge even with the line i-l, make a mark around the pattern and also mark the hole K for the centre of the rounded nosing. Now mark off the riser by laying the pattern H on the string as from g to i. After you have the string marked off, take a 1⅛-inch bit and bore holes for the ends of the nosing as at k, take a knife and cut along the line i-l and i-g before sawing in. This will give you a clean cut for the treads and risers to fit against. Saw in ½-inch deep, or the distance the treads are to project into the string for the top and bottom of the treads, and chisel out a groove; next saw in for the risers and chisel out. Put in the treads and wedge them with wedges cut to fit, these wedges should be glued. After the treads are put in place, put the risers in and wedge them the same way. Sometimes the treads have a groove cut in as at P and a tongue cut on the riser to fit into the groove, and the reverse at R.

Fig. 7 shows an open stair string. The nosing of the tread B is mitred at C for a return nosing, which is generally done when building an open string stairs. At A-A are shown dovetail mortises to receive the ends of the balusters. Sometimes holes are bored into the tread for the balusters instead of dovetails, and sometimes they are toe-nailed on top of the tread.

Fig. 8 shows the floor plan of fig. 9, A being the starting newel, B the landing newel, C an open string and D-E a closed paneled string; a,b, and c represent balusters, the dotted lnes between the square ends of the balusters represent the turned part of the baluster, e shows the end of the return nosing, f the cove under the nosing, H the floor joint, the dotted line at g-h and i-j represent casing or curved railing, where they join the newels, d shows a cross-section of the hand railing, l a section of the finish above the floor around the well hole or opening in the floor to allow head room above the stairs, k shows a panel around the well hole and m the projection of the newel below the ceiling. The balusters in between the railing and the closed string are shown square with a fillet in between them as a O. O' gives a cross-section of the same, P shows the inside string, E the outside panel and r the rough horse. In fig. 8 a, b, and c show the location of the balusters as a-b-c-, fig. 9, d-e-f-g the face line of the nosing of the treads. The 3½-inch mark at C denotes that the first riser is 3½ inches in from the face of the newel and the figure 7 denotes that the newel is 7 inches wide; the landing newel being 6 inches wide and the top riser in the centre of the newel. When setting up a flight of common stairs, where the treads and risers are nailed to the horses, and an open string as at C, fig. 9, the outside string must be cut for a mitre joint for the risers as at s, fig. 9, and the top cut square, the end of the rise will then be mitred to fit against the end string. After the end string is cut and nailed in place, then cut the risers and nail them in place before putting in the wall string. Next cut the wall string and lay it on the stair horses against the wall and risers, and take your compass and scribe along the front of the rise; cut to the scribe mark and your wall string will fit against the risers. Nail the wall string in place and fit the treads against the string by scribing. When both sides of the sairs are closed, you can crowd the treads a little and it will not open the joint of the risers.

## Calls Among the Trade

**Shultz Bros. Co., Ltd., Brantford, Ont.**

Are rushing and see splendid prospects for the summer trade.

The Ontario Box Factory, Hamilton, are very busy at the present time, and everything points to a good season for this firm.

**D. Aitcheson & Company, Hamilton.**

Everything was running at high speed when we called and the indications all point to a good season's trade in sash and doors and general mill work.

**Fred Wood & Son, Saw Makers, Toronto.**

Report business in their line as being much better than last spring. Mr. Wood, Sr., is well known to the trade through his long connection with the Jas. Robertson Company of this city.

**The Ham & Nott Co., Limited, Brantford, Ont.**

This well known firm are enjoying good business and at present are engaged in erecting another building to take care of some of the lines they handle.

**The Patterson Tilley Company, Hamilton, Ont.**

This firm are very busy both in the mill and yard. They manufacture sash and doors, interior fittings, etc. We also noticed a fine line of veneered doors on the floor. Special attention is given to mill work.

**P. W. Gardiner & Son, Galt, Ont.**

We had the pleasure of going over this plant and found everything as represented. Their equipment enables them to manufacture doors, sash and columns of a high grade at the right price. It is superfluous to say they are having good business.

**John Hillock & Co., Toronto**

Lumber dealers and manufacturers of doors, sash and general mill work, are very busy. They also make the Arctic refrigerators, and shipments are now being made in carload lots.

**T. H. Handcock, Bloor street west, Toronto.**

**International Harvester Co. of Canada, Hamilton, Ont.**

The general prosperity of this company is fully illustrated by the fact that they are continually adding to their plant. Several new buildings are now in course of construction, some of which are near completion, presenting a substantial and pleasing appearance. About 2,000 men are employed.

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# Furniture and Veneers

## How to Recognize Wood

Identification of various woods, without comparison, is not as easy as might appear. Many are so nearly alike as to make successful substitution possible, yet they have their own characteristics which make them easily recognizable to the expert. However, there are characteristic differences which are difficult to describe, according to C. Clankey, in Wood Craft.

So nearly alike are certain pieces of cypress and yellow pine that comparatively few men are expert enough to tell one from the other by sight alone. With regard to coloring, there is always a characteristic difference between two woods, although it may be obscure. It consists in a peculiar blending of pink, grey and brown which does not occur in the hard pine. Hard pine when burning does not differ much in odor from other woods, while that of cypress is very marked.

Other woods having pungent odors are black walnut, cedar and Douglas fir, while some with a lesser odor are cottonwood, basswood, oak, ash, elm and even hickory. All may be known by their odor, but cannot be described in words in order that the woods may be thus distinguishable. So far as verbale description is concerned, there is no common wood, with the possible exceptions of bird's-eye maple and quarter-sawed oak, a description of which would not fit some other equally as well.

One invites error in depending upon the color of wood alone as a distinguishing mark, unless a fresh cut is made deep enough to get under the effect of the persistent action of the sun's rays. The indirect rays of the sun will change the color of a piece of lumber in time as completely as if it had lain directly in the sunshine. Although the change in some woods is slight and amounts to little more than weathering, in others the process is comparatively rapid and results somewhat unexpected.

A piece of bright yellow poplar of a greenish tinge with an edge of white sap, will turn as brown as a cypress board after three months' exposure, and the white sap will be as brown as the darker heart. Exposure will also darken mahogany and walnut. Red gum when exposed loses its lavender tinge and becomes a lusterless brown.

In describing red gum, the chief characteristic named would be mild purple, pink and brown with modified streaks of black running through it in fantastic figure. The same thing, however, is sometimes met with in yellow poplar. One can find gum boards, though, which have no figure, but which are colored very much the same as poplar which has been exposed to the light for a short time. It is difficult to describe tupelo gum, cottonwood or basswood so that one description will not be mistaken for either of the others. In describing the difference betwen red and white oak, the texture and appearance of the grain, the open pores and the look of the end of the pieces have more to do with determining the class than the color alone.

It is commonly known that oak has a characteristic color when it is wet or green, but very little when well seasoned, which accounts for some of the mistakes made by woodworkers of taking oak out of the dry kiln and testing its condition by the odor, thinking it is dry enough to work when in reality there is but a portion of the outside parts dry enough to prevent the sap on the inside from reaching nostrils of the workman.

## Furniture Styles

"Furniture," that exquisite publication devoted to the exploitation of the higher examples of furniture and house decorations, is authority for the statement that the exhibits for the coming season disclose even a greater tendency than heretofore to produce period furniture. Lighter effects than in some preceding seasons were noticeable. The more heavy, massive furniture, in all departments of manufacture, is passing. The heavier Colonials are still manufactured and apparently are in high favor.

Arts and Crafts, or Mission, and its modifications still continue in favor. Makers of the better grade of these things have not suffered for trade, and the leading merchants of furniture testify that the plain Arts and Crafts, of fairly good quality and design, still continue to sell well. Apparently there is no decline in favor with which this distinctly American school of furniture is being received. Large quantities of Circassian walnut and satinwood are coming into use in the high class furniture, but still mahogany is more in evidence than any other wood in all the better grades of furniture, with oak a good second. In oak furniture each season witnesses more of the dark, dull finishes, and a decadence in the golden oak finish. The favor in which golden oak was held is evidently passing.

Red gum is growing in favor, but chiefly as a wood from which god imitation mahogany is made. The newer examples of furniture made of this wood are finished darker than the earlier samples, and in finish justify the name "satin walnut." The wood lends itself readily to a light walnut finish, and with this finish is likely to attain more favor than when the finish was without a stain of any sort.

## Economy in Smoke Prevention

After remarking that there can be no hope of the general adoption of means to prevent the fouling of the air of great cities with factory smoke unless it can be demonstrated that the adoption of such means will result in the saving of money to the makers of the smoke, Pro. J. A. Switzer, of the University of Tennessee, records the result of experiments which he has made with smoke consumers based on the principle of injecting, with steam jets, fresh air into the furnaces whenever fresh fuel is put upon the fires. He finds that the claim that such apparatus increases the efficiency of the boilers by increasing the evaporation of the water is well founded, and that there is a real economy in their use.

## Position Wanted

Superintendent for furniture factory. High grade, practical cabinet-maker, draftsman, designer, etc., wishes to change in near future. Address Box 100, CANADIAN WOODWORKER.

# Wood Staining and Material Used

By A. Ashman Kelly

(Continued from April issue)

The water rubbing is best for the polish finish for the reason that the rubbing is much more rapidly effected than with oil; again, it is much easier to clean up after rubbing with water, as the pumice does not stick in the corners so closely, and the grit is not so difficult to remove from the job with water rubbing, which is, of course, followed by water cleaning off. Plenty of water may be used in cleaning off after water rubbing, which will remove all the grit. The finisher knows what it means when pumice grit remains to work up in the varnish coat.

After the surface has been made level and smooth with the pumice stone and water, it is then rubbed with powdered rottenstone and water in order to remove the scratches made by the pumice stone. Should there be any remaining pumice stone grit it will cause scratches in the work. In the finishing rooms of the best furniture factories it is the common practice to take some furniture polish and waste after the work has been rottenstoned and rub briskly with that, causing a lustre to appear, then a large piece of clean rag is wrung out in water, comparatively dry, a few drops of alcohol are placed on the rag and with this the surface is quickly wiped off. This will remove the cloudiness that the polish has left. If the work had been rubbed in oil the wet rag with the alcohol would be the thing to use in order to remove the greasiness.

In furniture finishing of the best grades, the work after having been rubbed with the pad and furniture polish, is polished by putting a little of the polish in the palm of the hand and the surface of the work is rubbed therewith. This is called "hand-polishing." This rubbing is continued until all marks of the rottenstone rubbing are removed. There are also to be thus removed marks made by the polishing with the waste or cotton which make marks that are bound to show on a highly polished surface. Indeed, the palm of the hand seems to be the most perfect rubber that can be devised.

Rubbing is a very exacting operation. The varnish will always show gray after the rubbing, due, of course, to the removal of a portion of the varnish on the surface, and it is by subsequent applications of polish and the act of polishing that the surface, though not the varnish, is restored to a polish or lustre. It is important that the varnish be not rubbed excessively, which leads to danger of cutting through the substance to the wood.

One objection to water rubbing is that the water gets into the joints of the wood; but we are not ready to admit that the water does any such thing, for the reason that the varnish will fill up the joints and prevent the water from entering.

### How to Finish Elm Furniture.

Elm has a large pore though not as deep as that of oak or ash, and it can be filled more readily. But there is one trouble to be met with, that is the fuzz or whiskers of the wood and which ordinarily catches the filler and causes a muddy, uneven color. But I offer the following method as one that overcomes the trouble mentioned and enables the finisher to turn out a very handsome job in this wood. Instead of filling with paste filler, use the following materials and methods. First, a liquid filler; have some good primer that does not settle, break up some paste filler, medium antique, in turpentine to make an amount equal to the quantity of primer measured out. It is important to use turpentine instead of benzine because it will not evaporate so quickly. Benzine would cause brush marks or laps. Now add together the liquid filler and the primer and half as much turpentine as either. Stir the mass thoroughly together. Any change in the color may be made by adding burnt umber or burnt sienna in oil, or both. Apply this liquid filler with a flat- chiseled soft bristle brush, one about two and one-half inches wide. Carefully apply the filler, spreading it uniformly and evenly, wiping out the edges. Lay it off as in a staining job, then leave it to flat. In about 15 minutes the work will become flat, and will have a soft, velvety feel. Allow the work to stand 12 hours, then rub off lightly with No 0 sandpaper, making the surface quite smooth; now apply a coat of the primer. After this has stood 12 hours it may be rubbed down with fine paper very smoothly, after which you may apply a coat of rubbing or a gloss coat as the case may be.

A good deal of elm is full of sap spots and these will appear lighter than the rest of the job. These spots must be stained. After the work has been filled and sandpapered take a bit of soft cotton cloth and a cup of distemper stain, using either burnt umber or Vandyke brown, and go over these sappy places with it. This will make the entire job uniform of color.

This method has advantages over the other measures usually employed and is therefore recommended to those who are not using it.

### Filling and Finishing Oak

Thin up 12 or 14 pounds of paste filler with one gallon of turpentine or benzine; with this fill the wood, which in this case is oak, and let the job stand until it turns gray; when it has become well set, rub off. Of course it is easier to rub off when the filler is still soft or green, but the rubbing would pull out some of the stuff from the pores of the wood. The filling of wood is of prime importance, and the filling, of course, includes the rubbing off as well as the mere application of the filler material. Give the filler time to set well; in rubbing, rub across and not with the grain of the wood. There is perhaps nothing better than tow for rubbing; in a little while the tow becomes filled with the paste and makes a capital rubber, filling instead of taking from the wood. Excelsior is too coarse, it scratches the surface or pulls out the filler. After standing from 24 to 48 hours, sandpaper with worn paper, or with, say, No. 000 paper. Start your work clean and smooth, and keep it so. A good surfacer on the paste filling is advised as it causes the varnish coat to stand out better by filling any little places where the oil or turpentine in the varnish might soak in. This surfacer should have a mineral, silex, base. It binds well with the filler, and makes a solid foundation with it. Such a surfacer is easy to apply, it dries hard, sands easily, has good covering quality, and is economical in the highest degree. It is better than any clear gum coating that can be applied After this first coating or surfacer is dry and hard, apply a coat of either coach or rubbing varnish. Some finishers produce what they call a "polish finish" on three-coat work; but in order to accomplish this feat you must have a clean varnish room, something not often found. If you can get the last coat free from dirt or grit, a fairly good, well polished surface may be ob-

tained without rubbing. For good work allow the filler ample time in which to dry; say 48 hours· let the surfacer have 3* hours, and so on.

### To Finish White Maple.

As linseed oil will darken any wood in time and as varnish also contains oil, in order to get a white finish with maple we must shellac it first to fill it. White or bleached shellac is to be used, and applied very thin, applying two coats of thin, rather than one coat of heavy. Shellac is hard to rub to a surface and heretofore has been rather costly, though this may not be considered as much of an objection where the furniture is of the usual costly high grade. White shellac fills the grain perfectly and does not discolor the wood, but it is rather hard to rub, as already stated.

To secure the best results in this work, give the varnish plenty of time to dry; do not rush the coats. As the quick varnishes are the darker ones, use the slower varnish. Of course, dammar varnish or varnish containing dammar, will not answer, such a varnish will neither rub nor polish. Two coats of a suitable white copal varnish will suffice. Allow four days between coats. If desired, let the second coat stand five days, then rub with pumice stone flour, water and a bit of rubbing felt. Wash down well and after 24 hours, polish with soft polishing felt and rottenstone.

The use of suitable brushes need hardly be mentioned here, and yet to secure the best results we must have the best brush.

White maple may be finished either in full lustre, a half-polish, or full polish. In any case, it will look beautiful.

## Mahogany

Among the rich variety of timber trees met with in Central and South America and the West Indies, a large number never reach English markets.

Spanish mahogany is found in Central America, Mexico and the island of Cuba, and may be said to include the finest of all the West Indian mahoganies, having regard to beauty of color and richness of figure. It is not subject to heart or cup shakes to any extent.

Honduras mahogany, formerly found in abundance in the forests of Central America, and first imported into England about 1725, is not now so plentiful. It is well known to commerce as a valuable wood for furniture and joinery purposes. Its quality varies very much, according to the situation in which it is grown; but the best of it comes from northern districts. Honduras and other descriptions of mahogany have only about one inch of sapwood, and, being free from most defects, the loss in conversion is trifling.

African mahogany has for some years been imported into the London markets. It is hard, with a wavy and figured ap

## A Bad Mistake

A minister, who was a school trustee, had a regular set of questions which he was in the habit of putting to the pupils.

The teacher, knowing them by heart, prepared her class accordingly. First the name, then the age, and then the reverend visitor, who was a firm believer in fire and brimstone, would ask, "When boys are bad, where do they go?"

Johnny Jones happened to be the first victim, and on being asked his name, replied, "Johnny Jones, six years old, go to ———."

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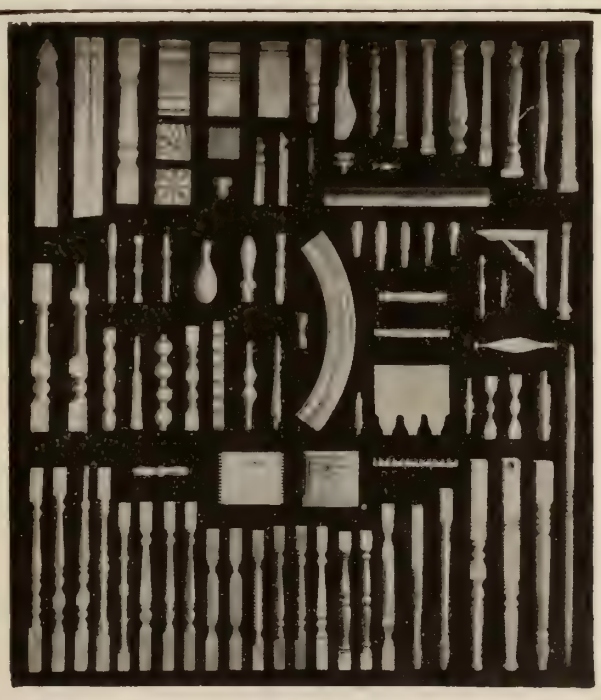

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# Boxes and Cooperage

## Boxes and Box Shooks Manufactured, 1909

From Forestry and Irrigation Department Report not yet issued

The figures given in this report represent about 60 per cent. of the quantity of lumber used during 1909 by the box manufacturers of Canada, but do not include the large quantities used by the shippers of stoves, machinery, furniture, musical instruments, carriages, implements, plate glass, veneer and stone. Those who ship bulky articles varying so much in size and shape as those named above, find it more profitable to manufacture their own crates and packages.

The reported consumption of lumber for boxes and shooks for the whole of Canada in 1909 was 82,972,000 feet, valued at $1,264,376. In Table I is a detailed statement of the number of mills in each province, the total quantity and percentage of the lumber used in each province, as well as its total and average value.

**Table I.**

As boxes and box shooks are commodities that will not bear much expense for freight, it is natural to find that nearly three-quarters of the lumber consumption for boxes is reported from Ontario and Quebec, the two provinces in which are centred chiefly the manufacturing and shipping interests of Canada. Were the statistics for the box industry as complete for 1909 as those for other industries, a still larger proportion of the lumber consumed would have been shown to have been used in Ontario and Quebec, and Ontario, not Quebec, would be shown at the head of the list. There are still a large number of factories, in Ontario especially, and in Quebec, from which no reports are secured. Allowing for the amount of lumber used by factories not reporting, it is probable that about 140,000,000 feet of lumber, worth about $2,100,000, is used annually for the manufacture of boxes. About 50 per cent. of this is used in Ontario, 30 per cent. in Quebec, and the remaining 20 per cent. in British Columbia, Manitoba, New Brunswick and Nova Scotia. Less than one per cent. is used in Alberta, Saskatchewan and Prince Edward Island, provinces where there are few manufactures and but little production of natural products requiring boxes for shipment.

Though Table I does not account for all the lumber used in the box industry, it is based upon replies from sufficiently numerous manufacturers in each province to indicate the species and average price of the lumber used.

Table II compares in each province the mill run price of the chief lumber used for boxes in that province with the prices paid for the same species of lumber by the box makers.

**Table II.**

It is evident from a study of the prices given above that though boxes, because of the short life and light service usually expected of them, may safely be made of cull lumber and mill waste, this practice of utilizing low grades is not as common in Canada as it might profitably become.

In Quebec and British Columbia box lumber commands a higher average price than all other lumber, and in Nova Scotia the spruce used for boxes almost equals in price the spruce of all grades on the market. The only explanation of this is that in these three provinces, two of which, Quebec and British Columbia, are large producers of box lumber, cull lumber or waste material is not used for boxes. In Quebec four-fifths of the boxes are of spruce; there is little or no competition from other woods; the trade has become accustomed to clear spruce boxes, and though for the greater number of boxes manufactured cull lumber of several kinds would do—spruce, balsam, poplar or pine—this lumber is wasted and good grades of spruce are used. In British Columbia the waste of timber is more flagrant. Although only about 6 per cent. of the lumber cut in British Columbia is spruce, two-thirds of the boxes manufactured are of spruce. Other woods suitable for box making in British Columbia are Douglas fir and hemlock, of which large enough quantities are wasted in the sawmills every month to manufacture all the boxes used in the province in a year. But the utilization of waste timber has not ben developed in British Columbia; the buyers of boxes have been educated to demand a high grade article, and as a result British Columbia uses for boxes spruce which has been selected at $16.59 per thousand from a market upon which all grades of spruce average $13.44 per thousand.

The two provinces where waste timber is utilized for boxes are Ontario and Manitoba, where pine forms two-thirds and one-half respectively of the box timber manufactured. White pine is the box timber demanded by the trade in these provinces, and as white pine lumber of the better grades sells at too high a price to make it available, the box factories use a large proportion of culls and rough material—timber which would otherwise be wasted.

Pine is yet the only wood of which lower grades are utilized to any extent in the box business. Manufacturers of pine boxes buy their cull material at about $15 per thousand; manufacturers of spruce boxes can buy good spruce for the same price, and can thus produce a box of first class spruce as cheaply as any one can turn out a box of cull pine. This fact tends to prevent the utilization of rough material or low grades of other species than pine, even though they may be well adapted for box manufacture.

In Table III are shown the quantities of lumber of each species used in box manufacture in 1909, the percentage each formed of the total, its total value and average value per thousand feet.

**Table III.**

As well as supplying from 50 to 80 per cent. of the box output of four different provinces spruce furnishes over one-half of the entire consumption of box lumber in Canada; the only other wood used to a large extent is pine, which forms 30.3 per cent. of the total. These two woods together account for five-sixths of the total; the remaining one-sixth is comprised of 14 different woods, of which basswood, poplar and hemlock are the chief.

The cheapest native woods used were balsam and poplar, which cost $9.82 and $11.29 per thousand respectively. Hemlock and ash were the only other woods which cost less than spruce and pine, the staples.

The hemlock was nearly all used in British Columbia.

Nearly 8 per cent. of the basswood lumber cut in Canada is manufactured into boxes. In point of quantity basswood was eleventh in the 1909 list of lumber producing trees, but it was third in the list of timbers used for boxes. It is light, tough, odorless, and consequently a very popular box timber. It is much in demand for provision boxes and trunks. Other woods which find special uses in the box industry are spruce and pine for salt and butter boxes; pine, spruce, cedar, balsam and butternut for tobacco boxes; poplar and cottonwood for egg and butter boxes; elm, maple, beech and birch for trunks, and pine for shoe boxes.

Two imported woods are used for boxes in Canada: Spanish cedar in the tobacco trade and gum for general purposes. The average price of gum was in 1909 only $10 per thousand. Very few veneered packages are manufactured in Canada.

It has already been mentioned that great economies might be effected if as large a proportion as possible of lower grades of lumber—resawn slabs and other mill waste—were used in the manufacture of all boxes as they are now used in the manufacture of pine boxes. There is another economy in forest utilization possible to the box industry, and that is the utilization of species which are not now desired for other purposes, especially western hemlock and different species of poplar. Experiments have been conducted by the United States forest service which showed that for large and medium boxes cottonwood is stronger per unit of weight than New England white pine, and that for small boxes both cottonwood and western hemlock are stronger per unit of weight than New England white pine. (W. K. Hatt in circular 47, U.S. Forest Service.)

The same experiments showed that western spruce, the favorite box material in British Columbia, is for large boxes stronger per unit of weight than New England white pine. In addition to these woods, there are in central and eastern Canada poplar and balsam fir, woods which are cheap, light in weight, light in color, of even grain, odorless, tasteless, of handsome appearance and fairly strong, and should therefore be satisfactory for most classes of boxes.

| Province | Number of box and shook factories | Lumber Used | | Value of Lumber | |
|---|---|---|---|---|---|
| | | Quantity M. Feet B.M. | Per Cent Distribution | Total Value. | Average Value per M. |
| Quebec | 22 | 34,450 | 41 5 | 544,854 | 15 82 |
| Ontario | 25 | 25,100 | 30 3 | 388,259 | 15 47 |
| British Columbia | 3 | 9,017 | 10 9 | 147,722 | 16 38 |
| Manitoba | 1 | 6,732 | 8 1 | 95,820 | 14 19 |
| New Brunswick | 5 | 5,980 | 7 1 | 69,225 | 11 73 |
| Nova Scotia | 1 | 1,753 | 2 1 | 18,496 | 10 55 |
| Canada | 62 | 82,972 | 100 | 1,264,376 | 15 24 |

Table I—Boxes and Box Shooks, 1909—Number of reporting shook mills, quantity and value of lumber used, per cent. distribution and average value by provinces.

| Province. | Chief Box Lumber. | Percentage it forms of total Box output. | Average sale price at mills of province. (1) | Average cost price at Box factories of province. |
|---|---|---|---|---|
| Quebec | Spruce | 80 % | 14·28 | 15·02 |
| Ontario | Pine | 57 5 % | 22·33 | 14·97 |
| British Columbia | Spruce | 68 2 % | 13·44 | 16·59 |
| Manitoba | Pine | 51 9 % | | 15·00 |
| New Brunswick | Spruce | 50 5 % | 15·44 | 12·55 |
| Nova Scotia | Spruce | 80 % | 11 98 | 11·19 |

(1) Bulletin 11—Forestry Branch.
(2) No white pine lumber is manufactured in Manitoba. The pine box lumber is imported—chiefly from Ontario.

Table II.—Boxes and Box Shooks, 1909—The price of the chief box lumber used in each province compared with its average price at the sawmills of the province.

| | Quantity | | Value. | |
|---|---|---|---|---|
| | Thousand Feet, B.M. | Per Cent Distribution | Total | Average per M |
| Spruce | 43,034 | 52 7 | 651,133 | 15·15 |
| Pine | 24,781 | 30 3 | 373,818 | 15·09 |
| Basswood (1) | 3,329 | 4 1 | 57,355 | 17 29 |
| Poplar | 2,731 | 3 4 | 30,822 | 11 29 |
| Hemlock | 2,092 | 2 6 | 27,143 | 13 02 |
| Maple | 1,310 | 1 6 | 29,650 | 22 63 |
| Douglas Fir | 1,000 | 1 2 | 20,722 | 20 72 |
| Balsam | 895 | 1 1 | 8,785 | 9·82 |
| Elm | 733 | 0 9 | 10,739 | 14·65 |
| Cedar | 708 | 0 9 | 24,701 | 34 8 |
| Ash | 312 | 0 4 | 4,658 | 14·93 |
| Gum | 300 | 0 4 | 3,000 | 10 00 |
| Oak | 105 | 0 1 | 2,676 | 25 48 |
| Birch | 100 | 0 1 | 2,500 | 25 00 |
| Beech | 100 | 0 1 | 2,500 | 25 00 |
| Butternut | 70 | 0 1 | 1,340 | 19 14 |
| Total | 82,972 | 100 | 1,264,376 | 15 24 |

(1) Includes Cottonwood.

Table III—Boxes and Box Shooks, 1909—Total quantity, per cent. distribution, total value and average avlue, by species, of the lumber manufactured for the box industry.

**Gibson McCormack, cor, Keele and Vine St., West Toronto.**

This firm make sash, doors and moulding. They also handle lumber, laths and shingles, sewer pipes, cement, etc. They are looking forward to a good summer.

**Young & Co., builders and contractors, Toronto.**

This firm are running full time with the prospect of increasing trade. Besides being contractors on a large scale, they manufacture sash and doors, planing, matching and sticking, and make a specialty of bank and office work ,hardwood trim, etc. At the present time they have a fine line of bill material.

**Fox & Co., King St. W., Toronto.**

This firm are manufacturers of sash and door, also interior fittings and office fixtures, etc. They do a general custom trade in planing, matching and moulding. It is interesting to note that the business is growing to such an extent that it has become necessary to remodel the plant. This summer the firm will erect new buildings and install the latest machinery. We are pleased to say that Fox & Company are noted for their high grade work.

### Highly Hygienic.

An advertisement for feeding-bottles in a country paper ran thus: "When the baby has done, it must be unscrewed and put in a cool place under a tap. If the baby does not thrive, it must be boiled."—Fred B. Norris.

### A Necessary Precaution.

"Your Albert is going bald, ain't he, Mrs. Smithers?"

"Yes, Mrs. Peters, 'e certainly is getting 'igh 'eaded, and it makes it very awkward for the poor dear. When 'e washes, 'e 'as to keep 'is 'at on 'is 'ead to tell where 'is face finishes."

### Fresh Fish!!

Customer: Waiter, this fish isn't as good as I had here last week.

Waiter: Well, sir, some folks is never satisfied—it's off the same piece.

## A Has Been

By W. R. Smith

He came into my office during the middle of the forenoon. A tip from one of the office force told me he was an applicant for employment. I was engaged with other matters at the time and motioned for him to have a seat until I could talk to him.

While I completed the work I had in hand I sized him up out of the corner of my eye. He was probably 60 or 65 years old; wore strong glasses; had gray unkempt hair; was evidently feeble and also nervous.

I soon was at leisure and he braced up with a very evident effort to present as good an appearance as possible and asked if I could not use him at some kind of work about the place. I always like to have a man tell me about himself, and a few questions brought out the information that he had been a millwright in his earlier days but had sustained a fall while so employed from which he had never fully recovered

Now a millwright at that age, is still disposed to work, even if crippled physically, is a pretty good piece of property for what he knows. So I then began to question him on millwrighting; asked him a few simple questions, but was surprised to find him confused at once. I jumped at the conclusion that if his story was true, and had he ever been a competent millwright, that fall he had must have happened in such a manner that he lit on his head, and I afterwards found this was the case and that it had jarred most of his judgment loose.

I explained that we were full-handed and took his address, telling him I hoped I could find something for him soon, in which case I would let him know.

On inquiring about him I found that he had at one time been considered the best millwright in the city, but after he had been injured he was never himself again.

When he called on me again he was despondent. He told me with quivering lips that he was out of employment and no one seemed to think he could work, but that he could and that he wanted to, and actually begged me to give him something to do about the works.

Of course, I haven't any philanthropic ideas as to the best way to spend the money of my employers while I am intrusted with the hiring of their men, but he was so eager to work while many men are so anxious otherwise, that I thought I would take a chance on him in hopes he would come to himself and soon become of some value.

I tried him on some simple carpenter work, repairing a floor, and found that he could not even remember what he was doing. I then put him to cleaning up, sweeping and odd jobs, but soon saw he could not take care of himself among machinery. As he was in danger I called him into the office and explained that some of the old hands — regular men who had been sick — had come back and that we would no longer need him. He took it hard, however, although I almost lied trying not to hurt his feelings.

I was interested in the old man and sought further information as to why he should be dependent on odd jobs for an existence at his age when he showed all over that he was "clean," and appeared to have always been so, bearing none of the tell-tale marks of misconduct. I learned that he had a home and had some means when his fall crippled him, body and mind, that his relatives (he had a family grown up) had tried to have him sent away to a state institution but failed owing to the fact that he was in no wise insane, only childish and broken. Neither could they quite agree, I suppose, as to how to dispose of his home and divide it up, but that part of his property more easily carried off had been "absorbed" and neighbors to the family told me his relations did not disguise the fact nor keep it from him that he was a burden and a care and he still had sense enough left to realize just what conditions were and that the only trouble with him was that he was through living but death was not obliging enough to call on him.

I had always used the slang expression "a has-been" in jest up to the time I met this old man, but it has a serious meaning to me now. A man can store enough in his mind that he need not fear his body weakening, or if he raises a family he might reasonably expect that they would care for him in his old age, or if he saves all his life he might think he could fall back on that, but for all that a man may do just right all his life and then Providence may kick all the props out from under him at the last and leave him something bitter to chew on till death comes.

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## Installing Cost System

In running a box factory one of the essential features is a thorough system for keeping track of costs and one of the largest factories here has lately established one in which it has been the intention to get away from the tendency to charge many items to general expense, or on the other hand, to carry a burdensome amount of charges to detailed expense. The right sort of system enables the factory to put its finger very promptly on any part of the business which appears to be running at too large a cost, also to correct the conditions without much delay. It sometimes takes the whole time of one bookkeeper to run such a cost system properly, but the results are satisfactory in showing just how many boxes cost and where a saving may be made.

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## A Reconstructed Box Factory

A box factory in Chelsea, Mass., was destroyed during the second Chelsea fire. In reconstructing the plant every effort was made to produce a model factory for this type of manufacture. To this end, the engineering firm of Lockwood, Green & Company, of Boston, Mass., were called in to design the new plant. The engineers made their plans with an eye to the most economical plant arrangement possible and also with the idea of giving the property an attractive appearance architecturally.

The property itself is admirable for laying out a factory of this kind. It is of the shape of a right-angle triangle, bounded on the long side by the Boston & Maine Railroad, so that shipping and receiving facilities are of the best. The power plant was located at practically the centre of the property with the main mill next to it in the right-angle. There is sufficient space between each building to insure maximum light and at the same time the neighboring buildings are sufficiently close to facilitate the transportation of materials.

From the receiving building alongside the railway, power driven roller conveyors carry the raw material to the upper floor of the main mill. Several independent conveying systems handle shavings, and clippings, and sawdust, depositing them either in the boiler house to be used as fuel or in the bins of the kindling building. Kindling wood is one of the by-products of manufacture, and the arrangement for hand-

ling this is most excellent, it being conveyed mechanically from the saws to a large bin in the upper storey of the kindling building under which carts are driven and loaded directly from above.

Alongside the main factory is the stable and beyond it in the extreme corner of the property is a storey and a half office building. The buildings are all similar in design, being in general of mill construction with paneled brick walls, the panels extending from the ground to above the upper storey windows. The brick pilasters between the windows are joined by an arched brick construction extending up to the cornice. In the case of the main building, the windows extend the full width of the panels between pilasters, but in the other buildings where light is not so essential, the windows are smaller but the same panel width is retained, giving an effect of symmetry to the entire installation. In the case of the kindling building in which the upper floor is entirely devoted to bins, the panels are entirely blank. Concrete footings support the square spruce volumns. The heavy floor timbers and roof girders peculiar to slow burning mill construction, are used throughout, the floors being 3-inch hard pine overlaid with a one-inch thickness of matched maple or spruce boards. The roof is of 2-inch plank on which is laid a 5-ply tar and gravel roofing.

The main drive for the mill is a 44-inch belt driven by a 24-inch x 42-inch Rollins engine built by the Rollins Engineering Company, of Nashua, N.H. The main belt is housed in a beltway extending from the engine room to the main building, the main line shafting being just inside the building wall. An extension of the main engine shaft carries pulleys for driving the pumps. Three 72-inch Robb-Mumford return tubular boilers, 20 feet in length, furnish steam for all the uses of the plant, and there is provision for the installation of one more boiler in the future. These boilers are servide by three steel stacks 70 feet in height, which were a part of the original installation and came through the fire unscathed. There is also a Western Electric generator for providing electric light in the plant, driven by an 11 inch x 14 inch side cranked Ball engine. A Cochran 600 h.p. feed water heater is also installed.

## Simple Conveyor for Warehouses

Some more expeditious means of handling goods in warehouses, whether they be crates, boxes, bales, or what not, has long been necessary to supplant the slow, antiquated methods of doing this by manual labor, especially in regard to transit between building and street. This has been found in a new type of simple conveyor that has recently been devised, and which is now in successful operation. It comprises a number of trestles supporting a continuous series of wheels or rollers, carried on two rails likht a light, narrow-gauge railway. The wheels are employed when boxes have to be handled, and the rollers for bales and crates. The system works entirely by gravitation, a fall of about 30 inches in 100 feet being advocated.

Demonstrations with this simple appliance have sufficed to prove that goods can be expeditiously and safely transported by this means, and that sharp curves can be negotiated successfully. In a lofty building where goods have to be discharged from different levels the same system is adopted spirally, the gradient being so arranged that the descending goods do not acquire an unnecessary downward impetus. The conveyor has been adopted in England on one of the wharves of Thameside, and another larger installation is in operation at a Belfast factory, this latter plant handling packages weighing up to five hundredweight. The system is stated to be far cheaper and more efficient than the ordinary belt conveyor, the cost of installation being very low.

## Wonderful Effects of Forests

A striking example of the transforming effect of forests, not only on the appearance, but on the productivity of a country, is afforded by the department of the Landes in France. At the close of the eighteenth century about 2,500,000 acres in that region were little more than shifting sand-dunes and disease-breeding marshes. At the present time the same lands are among the richest, most productive and healthful in all France, and the change has been brought about by intelligent cultivation of pine forests. Even the character of the climate of the region has been ameliorated, and it has become mild and balmy. A thin layer of clay beneath the sandy upper surface of the soil, formerly impervious to water, has been pierced by the pine roots, until a thorough drainage is established to the spongy earth that lies below.

## Oak Veneer Panels make Trouble

The following account was recently given in the Building Age, being sent in by a reader from Winnipeg, Can., who is interested in the building trades, particularly the furniture makers' section. The question that he asks will undoubtedly prove interesting to others as well as himself.

I have had occasion to make an oak veneer panel 3 feet 3 inches by 7 feet in size, and 1¾ inches in thickness, which would neither shrink nor warp. I proceeded to make it in the following manner: Taking the core out of ½ by 10-inch pine, I cut the centre board and the veneer 7 feet long. The other portion of the core, ½ by 10 by 10 inches, to be most explicite, would be ½-inch by 7 feet by 10 inches. I next glued up all the material, making four pieces of five-ply 1¾ inches by 10 inches by 7 feet, and put them into the press, where they remained for 18 hours in an average temperature of 65 degrees F.

After taking out of the press, I placed the pieces on the jointer, that each piece should be perfectly straight and true on the face. I next jointed the four pieces up to make my panel 3 feet by 3 inches by 7 feet, strengthening the joint by grooving full length through the centre ½-inch wide and an inch deep, where I inserted an oak tongue ½ by 2 inches in cross section and 7 feet long. Everything seemed most satisfactory and I proceeded to glue the four pieces together, placing cramps across the panel to secure the joint until dry and standing it against a post in an almost upright position until the next day—a matter of 14 hours. On taking the panel to the bench for the purpose of cleaning up, I noticed it was not straight in the length, being one-quarter of an inch regular curve, whereas, the night before, when I glued it up, it was perfect.

I am at a loss to understand why this change should take place, as the material was dry and built up into five-play. Thinking, perhaps, the moisture caused by the glue or the strength of the veneers might have had something to do with it, I put the panel on the bench, convex side up, forced it to a concave, and let it stay that way for 36 hours in a temperature of about 50 degrees F. At the end of that time it was not materially changed—just about one-quarter of an inch off the straight.

# From Coast to Coast

TWO NEW FACTORIES FOR TORONTO.

The Otto Higel Company are building a $30,000 brick factory on King street near Bathurst street.

The Toronto Furniture Company are erecting a new four storey factory on Dufferin street, Toronto.

More than fifteen thousand men have been employed in the lumber industry in Western Ontario during the winter just ended.

WOMEN'S BUILDING TO COST $60,000.

A permit has been issued by the city architect's department for the new woman's building at Exhibition Park, Toronto. It will be situated at the south of the manufacturers' building and will be of concrete and brick construction. It will cost $60,000.

APPOINTED BUILDING INSPECTOR.

The city council of Brantford, Ont., passed a building by-law, providing for the appointment of a building inspector and the imposition of a tax of $1 per $1,000 on all building permits issued. The city would in this way get about $800, sufficient to pay the inspector.

FORT WILLIAM.

Sixty-one building permits were issued last month, amounting to $69,850.

NEW CANADIAN WIRE AND NAIL FACTORY.

A company has been formed which will establish a plant at Fort William on Lake Superior, for the purpose of manufacturing wire and nails. Arrangements have been made to purchase the materials from the Lake Superior Corporation.

32 MILLIONS TO COME ON TOBIQUE.

The annual meeting of the Tobique River Log Driving Company was held at Fredericton, N.B., lately.

Mr. Charles Miller, the president, occupied the chair. The following directors were elected: Charles Miller, Donald Fraser, Jr., F. C. Beatteay, Geo. Hilyard and Thomas R. Hilyard.

Mr. George Hilyard succeeds Mr. J. D. McLaughlin, who on account of being the driving contractor is prevented from continuing to act as a director. Mr. McLaughlin's contract for handling the corporation drive on the river runs for two more years.

Last year between 25 and 27 million feet of lumber came down the Tobique river; this year it is anticipated that the output will be between 31 and 32 million feet.

The directors later elected the following officers: President, Charles Miller, St. John; Secretary-Treasurer, J. C. Hartley, Woodstock.

FORESTRY IN NORFOLK.

St. Williams, in Norfolk County, Ontario, is rather a busy place in regard to forestry matters. This is the place where the Ontario Government has purchased about 1,200 acres of the blowing sand lands and is planting them in different suitable species of trees under the direction of Prof. E. J. Zavitz, forester to the Department of Agriculture.

Nursery and planting work is in full swing there now and sixteen students of the faculty of forestry of Toronto University, under Dean Fernow and Dr. Howe, lecturer in forestry, spent the week there, studying the trees of southern Ontario, and learning by practice the best methods of planting in these shifting sands.

Prof. Zavitz was down superintending the spring work, and James Lawler, secretary of the Canadian Forestry Association, came up to observe this new phase of forest work in Canada. Dr. Fernow was delighted with his visit and with the experience gained by the students, and it is likely the visit to St. Williams will become a regular function in connection with the work of the faculty of forestry.

PLANS FOR MONTREAL.

Further details of the work planned by the Grand Trunk Railway in connection with the raising of their tracks and the construction of new terminal facilities, issued recently, show that $3,346,000 will be spent on the new pasesnger station. In addition, freight sheds, the estimated cost of which is $275,000, a powerhouse, to cost $200,000; a new express building, to cost $770,000, are planned. The Intercolonial Railway freight house is to cost $100,000. The new passenger station will be 286 feet wide and 170 feet deep and will contain 13 tracks.

RICH BUT NOT IDLE.

Mr. John R. Booth, the millionaire lumberman of Ottawa, is in his 86th year a few days ago. He celebrated his last birthday by going out for a hard day's work at an hour when most younger men were still in bed. Friends who sought to congratulate him found him employed and attired like any of his workmen. Mr. Booth was born at Waterloo, Que., on April 5, 1826. He went to Ottawa 50 years ago, and started out with a small shingle mill at the Chaudiere.

The West Lorne Waggon Company, at West Lorne, has made an assignment to E. R. C. Clarkson & Sons. The liabilities total about $200,000, and the assets are about the same.

PLANING MILL DESTROYED.

The large planing mill of the James Smart Company, Brockville, Ont., was practically gutted by fire, a large portion of the stock and equipment being destroyed. Spontaneous combustion is thought to have been the cause. The loss is between $6,000 and $7,000, covered by insurance.

FURNITURE FACTORY BURNED.

Fire caused $50,000 loss to the plant of the Kensington Furniture Company, of Goderich, Ont. The loss is covered by insurance. The plant consisted of three buildings, two wooden and one brick. The two former were wiped out and the latter was badly damaged. The fire started in the top floor of one of the wooden buildings, used as a packing room, and spread rapidly to the second wooden building, where varnishes were stored. The burned plant was owned by F. G. Rumball, of London, Ont., and his son, John Rumball, was the manager.

FIRE IN A MILL.

About a thousand dollars damage was done by fire to the boiler room and glue room of the John C. Gilchrist planing mill, of Toronto, in a blaze which broke

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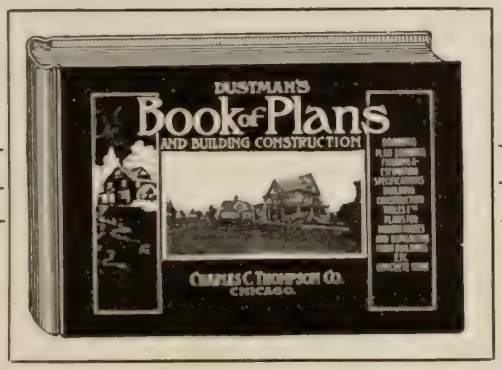


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cut about ten o'clock in the evening. The prompt action of the firemen saved the main building and the greater quantity of the stock which was stored there. The loss is fully covered by insurance. The cause is not yet known.

NEW TRUNK FACTORY.

Picton, Ont., has a new trunk factory, capitalized at $4,000. The company will be made up largely of the Hepburn Bros. and Mr. Martin, of Berlin, an experienced trunk manufacturer. It is expected the new factory will employ from twenty to thirty-five people and start work within two weeks.

HONDURAS.

Honduras is about the size of the Province of Ontario, and has a population of some six or seven hundred thousand, largely Indian and mestizos, or half-breeds. The forests of Honduras abound in rich woods, which are a source of considerable wealth to the country.

WAS A MILL HAND.

The man who was found dead in a box car loaded with lumber in Fort Rouge, Winnipeg, has been identified. His name was Thomas Ryan, formerly of Port Arthur, who had been in the employ of the Pigeon River Lumber Company's mills at that city.

BORED HOLE IN ARM.

A gruesome accident occurred in Perth, Ont., the victim of which was Wesley Truelove. The young man was engaged in the operation of a boring machine which was run by a gasoline engine, and had the work of shoving the cedar fence blocks along a trough and against the auger which was rapidly revolving. The machine ripped his clothing from about his body, and the instrument then coming in contact with his wrist, it entered the member and before the engine could be stopped the auger had bored the entire length of his arm.

The bone was not shattered but the flesh of the arm was totally lacerated. A surgeon was promptly called, and although the patient will suffer greatly, it is believed that the arm can be saved. The wound required 90 stitches in the dressing.

FIRE IN INCUBATOR FACTORY.

A serious fire broke out in the Model Incubator Factory, 196-200 River strret, Toronto, recently, and did damage amounting to $3,000 before it was finally put out. The fire raged for nearly an hour, being hottest in the centre of the building, where a quantity of wood for the incubators was being dried over a large box stove. It is thought that this may have caused the fire. Some 15 men are employed about the place, which is covered by $2,500 insurance.

FOR PROTECTION OF FORESTS.

In the Quebec Legislature a bill has been passed setting aside the sum of $18,000 for the protection of forests. This is a new move on the part of the province, and the Minister of Lands and Forests stated that it would undoubtedly be shortly followed by other grants, as the Government has made up their minds to do all in their power to protect the forests from fire. He stated that it was their intention to cooperate with the timber owners and railway companies.

NEW B. C. COMPANY.

The head of the new British Columbia lumber company which is being formed by the consolidation of the Michigan-Pacific Lumber Company and the Michigan-Puget Sound Lumber Company, will be at Victoria, B.C. Mr. M. Hankin will be manager of the sawmill and lumber department, and Mr. J. H. Moore, the new vice-president and general manager, will have charge of the timber and logging department.

DESTROYED BY FIRE.

The box factory of the Parry Sound Lumber Company, Parry Sound, Ont., was destroyed by fire on April 25th. The plant, which was one of the best in the province, will not be rebuilt.

MATCH FACTORY UNDER WAY.

Negotiations are under way for the establishment of a match factory at Port Arthur, Ont. The plant will employ 100 hands at the start, and the output will be handled by a Winnipeg firm.

HAVE DISSOLVED.

Larose & Cie., Montreal, sash and door manufacturers, are stated to have dissolved.

FIRE IN VANCOUVER.

The sawmill owned by Mr. W. H. Day, corner of Ferris road and Ontario street, Vancouver, was burned to the ground on April 18. The fire was confined practically to the mill building, very little lumber being lost. The loss on the building was partially covered by insurance. Mr. Day states that he will rebuild immediately. The daily capacity of the mill was 25,000 feet.

TAKEN OVER BUSINESS.

Oakley & Webb, Vancouver, have bought D. H. Campbell's sash and door factory in Kamloops, and will install a new plant.

NEW SAW MILL.

A sawmill is to be put in near Aldridge by H. R. Hazelwood, of Cranbrook, and J. W. Fitch, of Moyie, and 50 men will be employed. The firm has a contract to deliver 200,000 ties to the C.P.R. by November next.

MILL BURNT.

Mr. Seaman's sawmill at Stoney Brook, near Shanklin Settlement, N.B., was burned on April 14. The season's cut had been finished the evening before, and during the night several of the mill crew and C. S. Hickman's woods' crew left for town.

FIRE IN N. B.

Fire which broke out in the engine room of the Peel Lumber Company's mill, at Florenceville, N.B., on April 13th, damaged the plant considerably. The walls of the engine house were badly damaged and the roof fell in. The carriers caught and were half burned down. The loss will be covered by insurance.

PUTTING ON ADDITION.

The Interior Hardwood Company, of Berlin, Ont., are erecting an addition to their factory, 40 x 50 feet, three storeys high. The whole of this addition is necessary for present business.

CAMPS CLOSING

The Ontario and Quebec camps closed in certain districts somewhat earlier this year than usual owing to the depth of snow. The result was to throw a considerable number of men on the market, though in several sections work has been prolonged to a later date than last year. Concurrently, the low water in

the streams curtailed the operation of mills. The drives, it is expected, will be considerably later than last year. The cut is estimated to fall, on the whole, only slightly under that of 1909-10, and there will be an abundance of material for an active sawing season. In Manitoba, the winter just closed is reported to have been the best in many years for bush work, about 20,000 men having been employed in the territory tributary to Winnipeg cutting ties, poles and other lumber. In British Columbia, some of the larger mills have begun sawing and logging was active.

## TOTAL IN BUILDING PERMITS

The total in building permits issued for the current month to date is $753,740, a slight depreciation as against the same number of days last month, and considerably ahead of the corresponding period last year. To date the permits make a total of $10,000 in excess of those for the month of August, 1910, and bid fair to equal the month's totals of last year.

During the month the majority of the permits issued have been for residences ranking in cost from $1,000 up to $15,000, and the number of permits issued, owing to this fact, bid fair to exceed those of the previous 30 days. At least thre large blocks are under way, which will swell the month's totals considerably.

## $8,000 FIRE AT LINDSAY.

A somewhat serious fire occurred at the Baker Lumber Company's yard by which over a quarter of a million feet of beech and hemlock lumber and half a million shingles were destroyed. A G.T.R. car, filled with shingles, was also destroyed. The fire, which is supposed to have started from a spark from a passing steamer, proved a stubborn one to fight, and, although under control during the night, the firemen were not released until Sunday morning. The loss is roughly estimated at about $8,000.

## FIRE IN CAR SHOP.

Several buildings of the Canada Car & Foundry Company, at Amherst, N.S., were burned.

## A BIG CONTRACT.

The $1,500,000 contract at Transcona for the completion of coach shops and buildings, has been awarded to Haney, Quinlan & Robertson, the contracting firm, which is just finishing the erection of the shops at Transcona for the commission and the Grand Trunk Pacific.

## A PRESENTATION.

Mr. Jack Aisthorpe, for many years foreman in the forging department of the Nicholson file works, Port Hope, Ont., severed his connection with that firm on Saturday last. As a mark of esteem in which he was held by his fellow workmen they presented him with an address and a very handsome suit case.

## LOST A COUPLE OF FINGERS.

Mr. Cecil Bate, Argyle street, Stratford, Ont., an employe of McLagan's, suffered a painful accident while engaged at his work in the factory. He was cleaning one of the sawing machines at one end and another employee came along and shoved in a board, not seeing him at work. The consequence was that Mr. Bate suffered the loss of the second and third fingers of his left hand. The third finger was taken off clean and the second finger had to be amputated by Dr. D. Smith, who was called in attendance. The injury will give Mr. Bate an enforced holiday of a couple of weeks.

## SEVERED CONNECTION.

J. E. Burge has severed his connections with the Cleveland-Sarnia Saw Mills Company, and left for Spanish River, Ont.

## BLAZING FORESTS GIVE TROUBLE.

North Adams, Mass.—Blazing forests, which also have devastated 500,000 acres of timber land in the towns of Clarksburg and Williamstown and in the outskirts of North Adams, kept more than 400 fire fighters busy. While the flames showed little sign of dying out, despite three days' fight against them, actual danger to settlements was still remote. The situation was at its worst in Clarksburg, where the outlying houses were a mile and a half from the advancing fires, but the wind was light and no fear was felt for the immediate safety of the farm buildings.

## FOREST FIRE NEAR KENORA.

A big bush fire is raging near the east end of Clearwater Bay, Kenora, Ont., about 16 miles from here, and with the very dry conditions that are at present existing, it may spread over considerable territory. East of here, between Tache and Ignace, and four miles from the latter point, a fire is raging, and there are also fires in some portions of the country very clase to the main line of the C.P.R. Fire rangers started for Clearwater Bay several days ago, and men have also been sent east along the line to battle with the serious outbreak there. Conditions are regarded as serious.

## IMPORTANT INDUSTRY FOR PORT HOPE, ONT.

Mr. W. J. Shaw, superintendent of the International Tool Steel Company, was in town looking over the progress of work on the plant. The building is expected to be ready before June 1st, and the installation of plant and machinery will proceed as rapidly as possible. Few people realize the importance of this industry. It is the only factory in Canada manufacturing tool steel, and the steel will be equal to the finest in the world and much cheaper. Twenty furnaces will be set up as speedily as possible. These will produce twice as much high carbon tool steel as any crucible steel plant in America and of a grade superior to any not made from materials imported from Norway and Sweden. Even the steels used at Sheffield for the manufacture of cutlery require Norway and Sweden irons as a basis.

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Plessisville Foundry, Plessisville, Que.
Valley City Machine Works, Grand Rapids, Mich.
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Mussens, Ltd., Montreal.

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Mussens, Ltd., Montreal.
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# After the Whistle Blows

### The Editor's Toot.

The prize for this month's anecdote has been awarded to Andrew MacPherson, of Galt, Ont. His story, "The Pickled Piper," we think is decidedly good and should tickle the lover of Scotch stories. We also commend Mr. John Elder's story on the American athlete. For one story on this page we shall have to apologize to our readers, and our explanation we trust will be accepted. It's the tale entitled "There's a Reason." A brother editor who is at the helm of a paper somewhat similar to the Canadian Woodworker, phoned us and explained that he wished to enter our story contest, as the competition is open to all we were forced to accept his effort and publish it. Its judgment we leave to our readers.

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### The Pickled Piper.

On a large estate in the Scottish Highlands it was the custom for a piper to play in front of the house every week-day morning, to awaken the residents. After an overconvivial Saturday night, however, the piper forgot the day and began his reveille (can it be played on the pipes?) on Sunday morning.

Angry Master, from bedroom window: "Here, do you know the Fourth Commandment?"

Piper: "No, sir, but if you'll—his—whistle it I'll—his—try it, sir.'"—Andrew MacPherson, Galt, Ont.

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Dominion Pulp Mill,
Chatham, N.B., May 1.

Dear Mr. Editor:—

I enclose a story to try for prize you offer in May issue of Canadian Woodworker.

A well known American athlete decided to go to the old country under an assumed name, to see if he could win some races, as he was severely handicapped here; so he decided to try and get a job as an ordinary workman and not let known his identity. He called at the factory one day and asked the foreman for a job. On being asked if he was a tradesman, he replied he was a kind of handy man, and could turn his hand to almost anything. "Oh, I see," said the foreman, "can you run 'Patty?' "Yes, he says, "I'll run 'Patty'." "All right, come in the morning, and I'll give you a start." "Never mind the start," replied the athlete, "I'll run him level." Next morning the foreman was passing from one department to the other and he noticed a stranger making towards him, with handbag in his hand. The foreman thinking he was an agent, asked him his business. "Oh," says the athlete, "you engaged me yesterday to run 'Patty.' " The foreman being busy said just wait a minute. The athlete looking round, saw a little cabin, and thinking this must be the place to strip in, did so, and was soon sprinting in the yard in full running costume. The foreman noticed him, and thinking him a lunatic, got six strong men out of the works to try and capture him. They had no difficulty in doing so, and on being asked again what it all meant: "Well," he replied, "you engaged me to run 'Patty,' and here I am." "Oh," says the foreman, "I meant you to run 'Patty' down a hole." "Well, says the athlete, "I'll run him down a hole or up a gas pipe."—John Elder, Chatham, N.B.

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### "There's a Reason."

A theatrical manager was making arrangements for his troupe with the proprietor of the theatre and on being shown the one and only dressing room, he exclaimed, "Why, my dear man, I've eighteen men and women with me in this show They can't all dress in one room." What's the matter," returned the proprietor, "aren't they on speaking terms?"—From a brother editor.

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### Prayers to Fit.

"Oh, Lord," was the fervent prayer of a Southern negro, "oh, Lord, send a turkey to this po' ole darky." But he prayed in vain. Christmas was coming and he grew desperate. "Oh, Lord," he prayed again, with increasing fervor, "oh, Lord, send this po' ole darky to a turkey." And that very night his prayer was answered.—C. R. Parker, Stratford, Ont.

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### Gone to the Dogs.

Kin Hubbard, the Indiana humorist—one of them, that is to say—once was assigned to cover a performance of "Uncle Tom's Cabin." Hubbard had his brain-child, old "Abe Martin," report the play. This was the critique: " 'Uncle Tom's Cabin' played down t'Melodeon Hall las' night. Th' dogs was good, but they had poor support."—A. B. Thomas, Owen Sound, Ont.

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### Well-Informed.

Nurse: You have got a little brother.

Small Boy: Oh, yes, I know. The milkman brought him; it says on the cart: "Families supplied daily."—C. F. Williamson, Toronto.

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### After the Trial is Over.

Rastus was on trial, charged with stealing seven dollars and eighty-five cents. He pleaded not guilty, and, as he was unable to hire an attorney, the judge appointed Lawyer Clearem as counsel. Clearem put up a strong plea in defence, and Rastus was acquitted.

Counsel and client met a few minutes later outside the court-room.

"Now, Rastus," said Clearem, "you know the court allows the counsel very little for defending this kind of case. I worked hard for you and got you clear. I'm entitled to much more pay than I'm getting for my valuable services, and you should dig up a good-sized fee. Have you got any money?"

"Yes, Boss," replied Rastus, "I still done got dat seben dollahs and eighty-five cents."—Ned Rathbone, Nelson, B.C.

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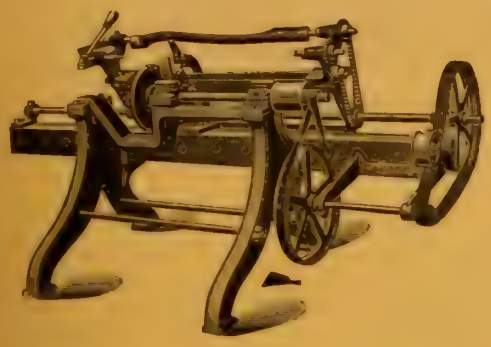
### A Lowlife's Trick.

Two Hebrew gentlemen were sitting in the rear seats of a Western express car when it was held up by highwaymen, who started at the front of the car and systematically cleaned out everyone's wad. Seeing all hope lost, Ikey leaned across the aisle and said: "Jake, here's dot fifty dollars vot I owed you."



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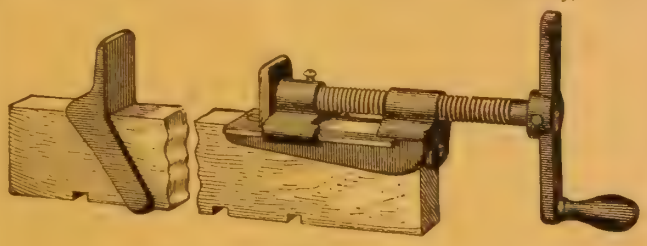

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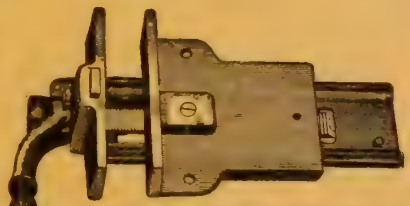

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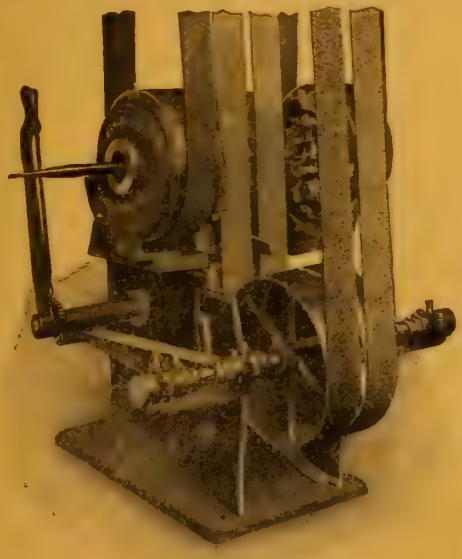

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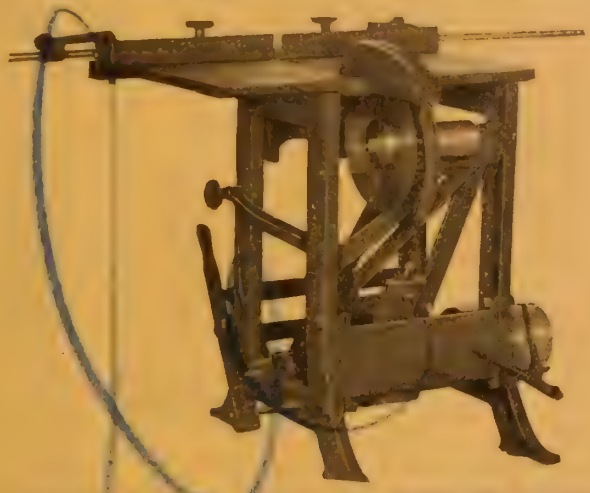
BOX E

## Lightning Cut-Off Saw



TO PRODUCE MORE WORK, TO INCREASE PROFITS

We suggest our Lightning Cut-Off saw. Is self contained. Feed semi automatic. Saw mandrill runs in self oiling bearings.

*Write us for particulars and price*

**THE SOUTHAMPTON IRON WORKS**

Southampton, Ont.

From

## Nova Scotia to British Columbia

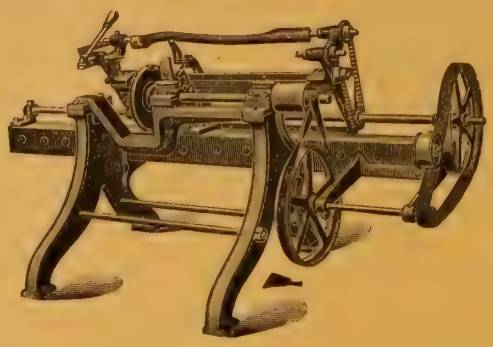
**Burton's** Saws are to be found in Mills, large and small.

We can tell you, or show you, good reasons, for this wide-spread sale.

Ask the Millman down street what he thinks of our saws, and if he is a user, he'll prove to be our best salesman.

Let us send you some facts about saws in general, and Burton's Saws in particular.

**THE A. J. BURTON SAW CO. Limited,** VANCOUVER, B.C.



This cut shows the No. 11 Ober Lathe for turning Axe, Adz, Pick, Sledge, Hammer and Hatchet Handles, Spokes, Whiffletrees, Gun Stocks, Shoe Lasts, etc., etc. It is very Simple, Strong and Durable, requires but very little power and is very quickly and easily changed from one kind of work to another.

We also manufacture other Lathes for making Spokes, Handles and Variety Work; Sanders, Shapers, Boring and Chucking Machines, etc., etc.

Complete Catalogue and Price List Free.

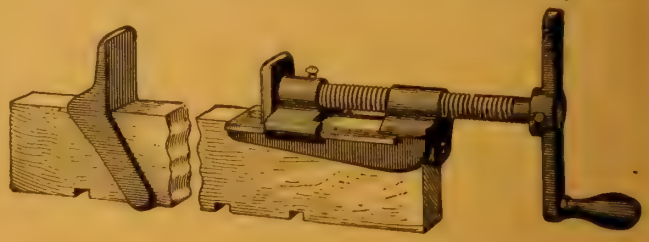
**The Ober Mfg. Co.**

**31 Bell St., CHAGRIN FALLS, O., U. S. A.**

## Clamp Fixtures, Per Set, 50 Cents

Gentlemen :—We are pleased to state that the 25 dozen Patent Maleable Clamp Fixtures which we bought of you a little over a year ago are giving excellent service, We are well satisfied with them and shall be pleased to remember you whenever we want anything additional in this line.

Yours truly, CURTIS SASH & DOOR CO.,
Sioux City, Iowa.



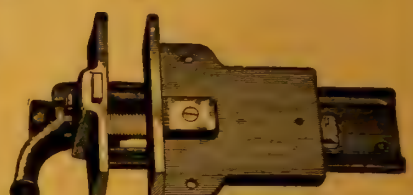
No. 1

STEEL BAR CLAMPS

The bars of our STEEL CLAMPS are especially tempered and guaranteed indestructable. Screws and fitting quickest possible action and made to stand any service or abuse. Don't fail to test sample of this clamp before you buy elsewhere.

**Over 26,000 of our Steel Rack Guaranteed Vices**

now in use. We solicit the priviege of submitting samples of these specialties on terms that will be attractive to rated firms. Write for list and prices.



RAPID-ACTING WOODWORKER'S VISE No. 3

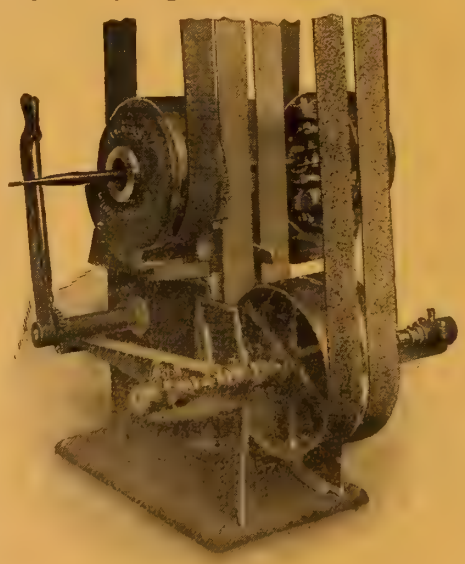
**E. H. Sheldon & Co., 326 N. May St., Chicago, Ills**

## A SAVING of 85o/o

in cost of sanding Round Work. This is what the *Nash Sander* has done for some of my customers, it might do that for you, if you gave it a chance.

*If You Manufacture*

**Chair Stock, Shade Rollers, Curtain Poles Dowel Rods, Hoe, Fork, Rake Shovel or Broom Handles Whip Stocks, Canes, Tenpins, Flag Sticks Veneered Columns, or similar Round Work,**



This Sander should interest you. I also build Sanders for Bent Round Work.

**J. M. Nash, Milwaukee, Wis.**

**842-848 30th Street.**

**Carborundum Knife Grinding Wheels have cut their way into favor in many of the most prominent wood working establishments in the country**

They not only do twice the work of any other grinding wheels—but they do it better and cleaner. They stand up well—do not burn the work—do not draw the temper even from the finest steel. Require almost no attention and last much longer than other abrasive wheels.

**THE CARBORUNDUM COMPANY**

**Niagara Falls, New York.**

# SAMPLES

of work done on our

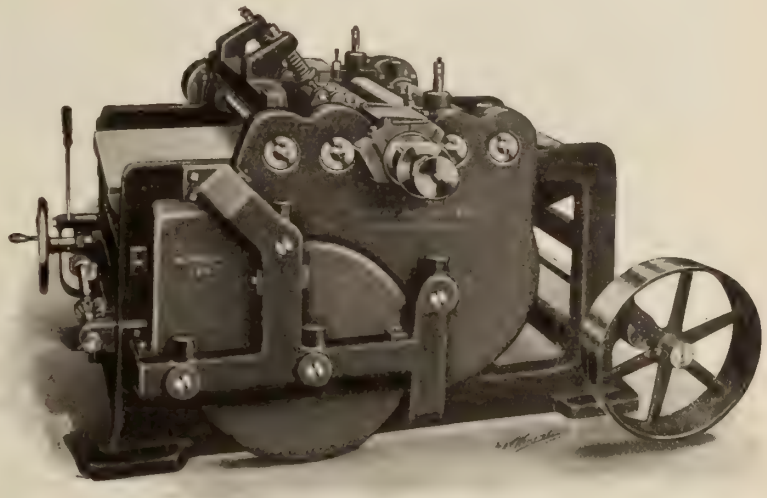
## No. 156 Single Cylinder

and

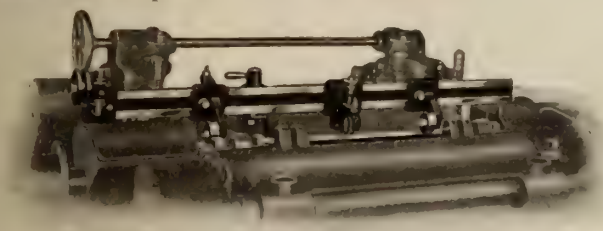
## No. 200 Double Cylinder Cabinet Smoothing Planers

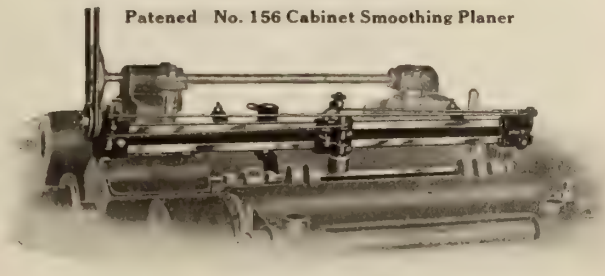
equipped with

**Air Hardened Steel Knives, Round Cutter-Heads, Automatic Grinding and Truing Attachment** will convince you quicker than all the words we could use that we have the best single and double cylinder smoothing planers it is possible to buy. These samples gladly sent free on request.

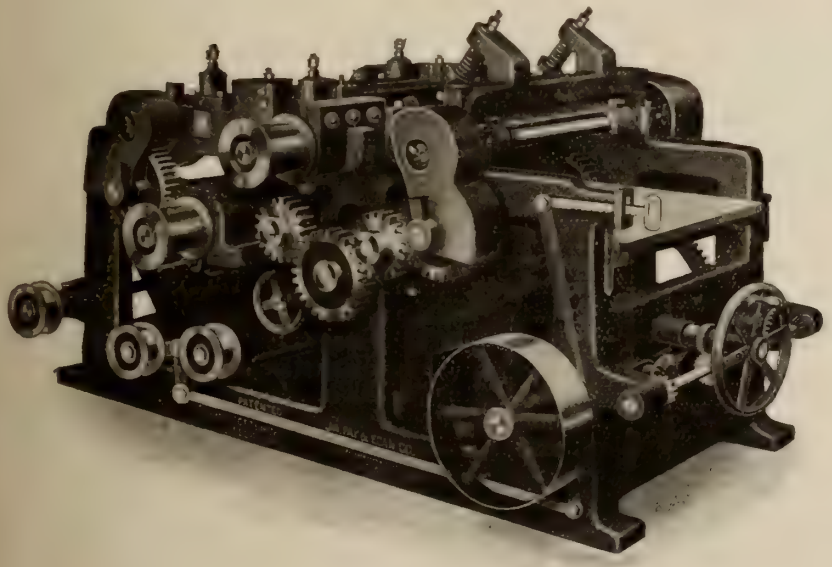


Patened No. 156 Cabinet Smoothing Planer





Showing application of Automatic Grinding and Truing Attachment to our No. 156 Cabinet Smoothing Planer



Patented—No. 200 Double Cylinder Cabinet Smoothing Planer

For producing extra smooth surfaces to take a finish, as used in Furniture, Piano and Cabinet Factories, these machines are in a class by themselves.

The No. 200 is also a great machine for turning out fine box lumber finished on both sides.

You will be as enthusiastic about these machines as we are when you see the kind of work they turn out on fast feeds—impossible to find a knife mark—looks like it was sanded—a post card to us will bring some of these samples and full description of these tools by return mail.

**It will pay you to send this card NOW**

# J. A. FAY & EGAN CO., CINCINNATI, OHIO

**153-173 West Front Street,**

**The World's Standard for Woodworking Machinery**

**Sales Offices:**

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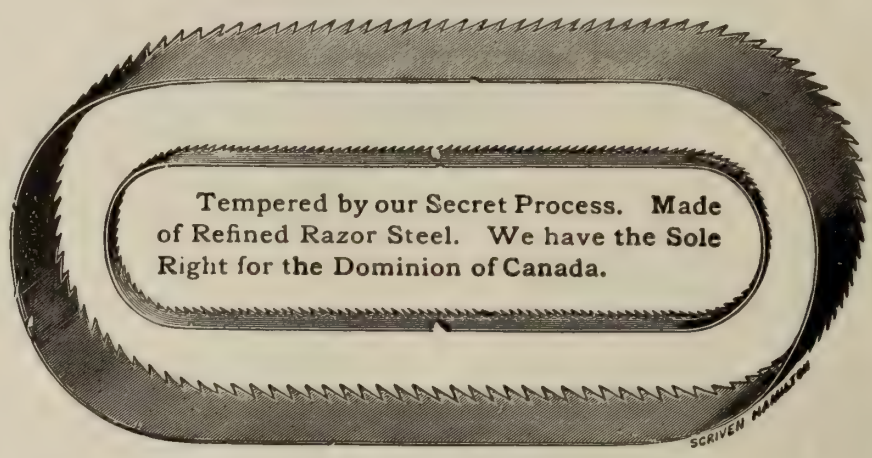
DETROIT, MICH.
98 Woodbridge St.

# Maple Leaf Saws

MADE BY

LARGEST SAW MANUFACTURERS UNDER THE BRITISH FLAG

We manufacture Circular Saws Gang Saws Mill Saws Band Saws Cross Cut Saws Buck Saws Saw Setts etc.




We manufacture high-grade **Band Saws** of all Widths and Lengths

These Saws are made of Refined Razor Steel, and Tempered by our Secret Process; for Fine Finish and Temper are not excelled.

**"Maple Leaf" Saws** are the best-tempered saws made

We are the only manufacturers in the world who export Saws in large quantities to the United States

**Shurly-Dietrich, Co., Ltd. GALT, Ont.**

A GOOD, USEFUL BOOK

## Wood-Working for Amateur Craftsmen

"Written So You Can Understand It" By IRA S. GRIEFITH, A.B.

125 Illustrations 128 Pages
Cloth Cover Size 5 x 7 incees

**Price 30 Cents Postpaid**

**will be advanced to 60 cents, July 1st.**

This book was especially designed to cover every essential step from the A B C to the X Y Z of woodworking. The chapters dealing with making special articles bring out every cut joint and process used in this important trade, and the proper use and care of tools, working up of materials, etc., are treated thoroughly and plainly.

CONTENTS:

Making Out a Stock Bill—Laying Out Rough Stock—Hand Saws—Sawing with Hand Ssws—Planes: How to Set and Adjust the Irons—Squaring Up Mill Planed Stock—Squaring Up Rough Stock—Whetting Plane Irons and Chisels—Grinding Plane Irons and Chisels—Making a Bird Box—Making a Tabouret—How to Make an Umbrella Stand—Making a Magazine Stand—Making a Table—Making a Cabinet.

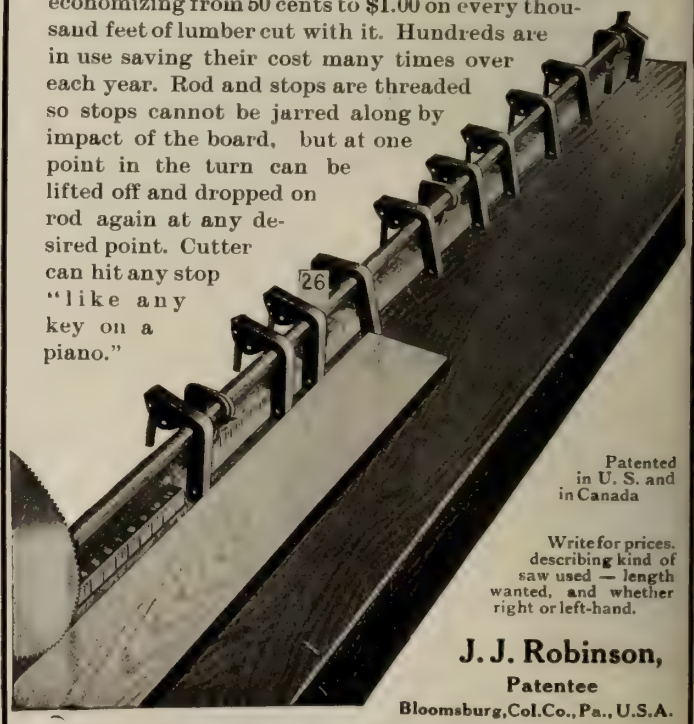
**A valuable book for either self instruction or use in manual training courses.**

BOOK DEPARTMENT

**Canadian Woodworker**

## Robinson Improved Saw Gage

**Made in Canada**—Saving Duty and U. S. Freights for Canadian Purchasers. Sent on 30 days Free Trial. If not entirely satisfactory, send it back at our expense. This Gage will save Time, Material and Mistakes, thus economizing from 50 cents to $1.00 on every thousand feet of lumber cut with it. Hundreds are in use saving their cost many times over each year. Rod and stops are threaded so stops cannot be jarred along by impact of the board, but at one point in the turn can be lifted off and dropped on rod again at any desired point. Cutter can hit any stop "like any key on a piano."




Patented in U. S. and in Canada

Write for prices, describing kind of saw used — length wanted, and whether right or left-hand.

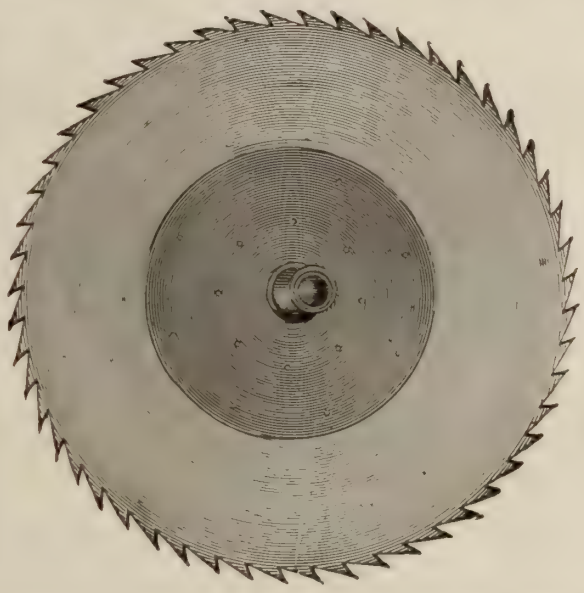
**J. J. Robinson,**
Patentee
Bloomsburg, Col. Co., Pa., U.S.A.

# R. H. Smith Co., Limited

## St. Catharines, Ontario

MANUFACTURERS OF THE CELEBRATED "GOLD COIN" SAWS

**We make Inserted Tooth Saws, Shingle Saws, Cross Cut Saws, Hand Saws, etc., etc.**

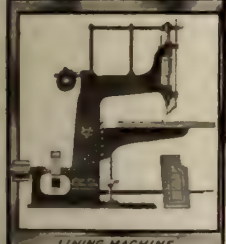


**We make every kind of Saw required in Saw Mills, Planing Mills, Furniture Factories, Piano Factories, Carriage Factories, etc., etc.**

We have been manufacturing for the Canadian trade since 1855, and have maintained the same high standard of excellence. Let us know your saw requirements.

# WOOD WORKING MACHINERY

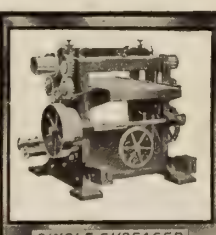
VALLEY CITY MACHINE WORKS GRAND RAPIDS MICH. U.S.A.

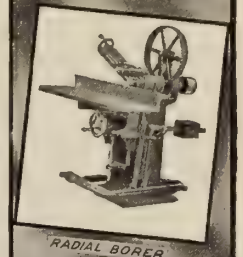

LINING MACHINE

VERTICAL BORER

DOWEL MACHINE

CARVER


SINGLE SURFACER

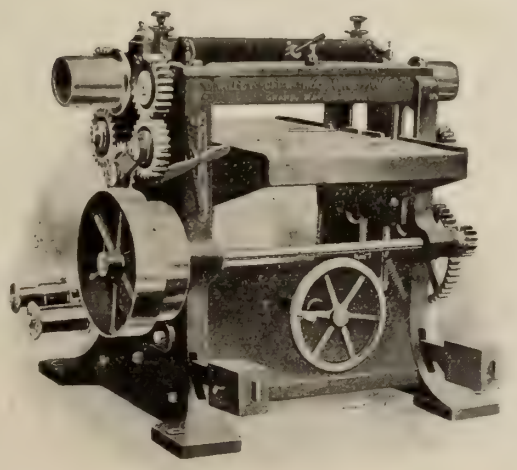

RADIAL BORER

LOCK MORTISER

WOOD LATHE

**Who looks over the field for new leads, new suggestions, judges values and seizes the big facts?**

*—The Man that Wius*



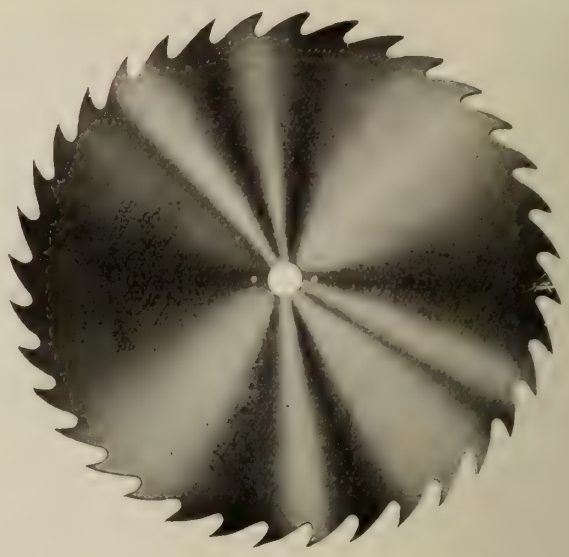
**We Style our 24 in. Double Belted Single Surface Planer "Reliable" and it is all the name implies**

Table will drop to take stock 8" thick. Machine has four geared power driven feed rolls, removable chip breaker, easy adjustable pressure bar. All gearing is covered, bevel gears being protected from shavings by the frame. Cylinder is double belted made of forged steel, carries two knives, has extra long bearings running in babbit lined self lubricating boxes, and travels 4,500 revolutions per minute, without vibration. Dresses your lumber as you want it dressed—to a finish.

## Valley City Machine Works

**No. 18 Campau Street - - GRAND RAPIDS, MICH.**

# When the Circular Saws in your Planing Mill are



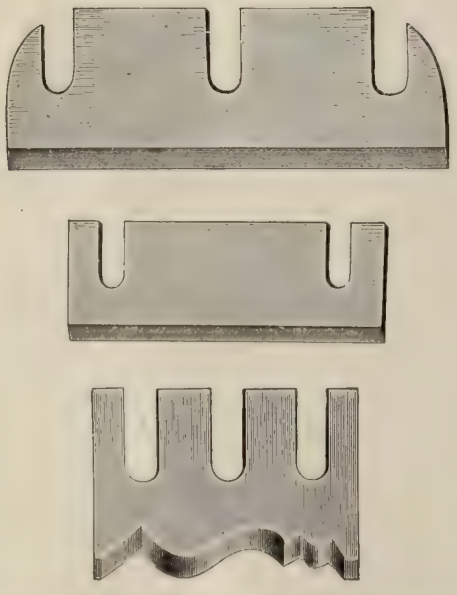
# Simonds Saws

**AND BEAR THIS TRADE MARK**

SIMONDS CANADA SAW COMPANY LTD. VANCOUVER B.C. TRADE MARK Simond Steel REGD ST JOHN. N.B. UNEQUALED IN QUALITY AND UNIFORMITY MONTREAL QUE.

The Guarantee of Quality made by our Company protects you and assures you a product that is the Height of the Saw Making Art.

# Simonds Machine Knives



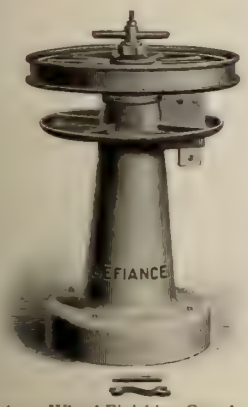
Are made in all styles and any desired size. Welded, Balanced, and Finished with the greatest care. Orders promptly filled. Standard sizes carried in stock.

**Factory in Montreal**

## Simonds Canada Saw Co.

**Montreal, Que.** **Limited**

**Vancouver, B.C.** **St. John, N.B.**



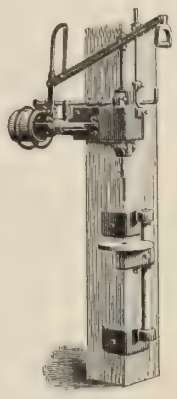
Auto Wheel Finishing Stand

Quality is remembered long after the first cost of any article.

# "Defiance Woodworking Machines"

represent a quality unknown only to those using machines of inferior manufacture.

Our tools are strong and well made for the accurate production of Hubs, Spokes, Rims, Wagon, Carriage, Automobile and **Heavy Auto Truck** Wheels, Wagons, Carriages, Shafts, Poles, Neck Yokes, Single Trees, Barrel Hoops, Handles of every description. Spools, Bobbins, Insulator Pins, Chair and Table Legs, Balusters, Newel Posts, Golf and Hockey Sticks, Shoe Lasts, Gun Stocks, Oval Wood Dishes and for **General Woodwork.**

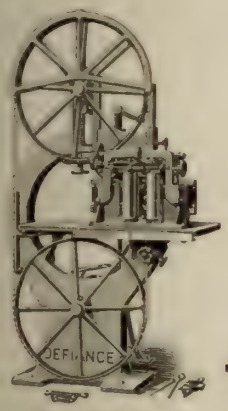

No. 15 Post Borer

**Designed, Built, Patented and Guaranteed by**

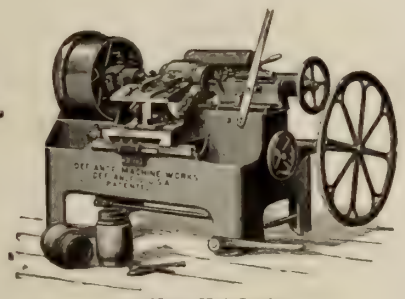
## The Defiance Machine Works,

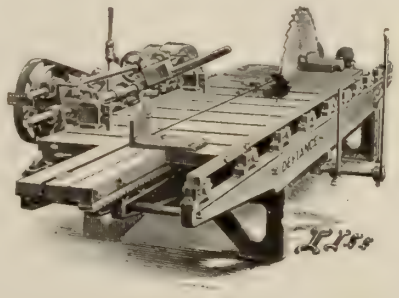
**Defiance, Ohio, U.S.A.**

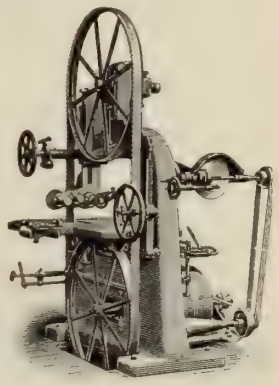
Ask for our new 535 page Catalo Write for tailed Quotations

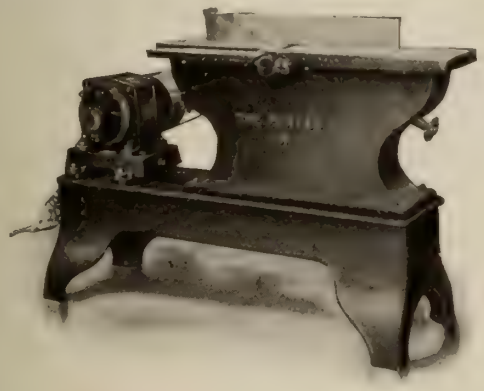


No. 6 Band Re-saw


No. 1 Hub Lathe


No 6 Bolting Saw


No. 4 Band Rip Saw



"The Porter" Jr. 5" Bench Jointer is ideal in any place where work within its capacity is done.

We equip them to your order with Square or Safety Cylinder, with or without Bench, and with or without Motor.

There is a **reason** why we ship so many of "The Porter" machines into Canada. They are **Quality** machines at **reasonable** prices.

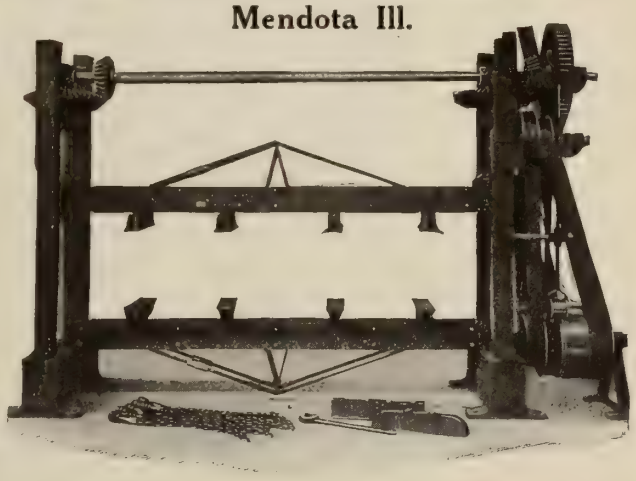
Our catalog J may be of good service to you. Send for it.

## C. O. Porter Machinery Co.,

**Grand Rapids, - Mich.**

## Black Bros. Machinery Co.

**Mendota Ill.**



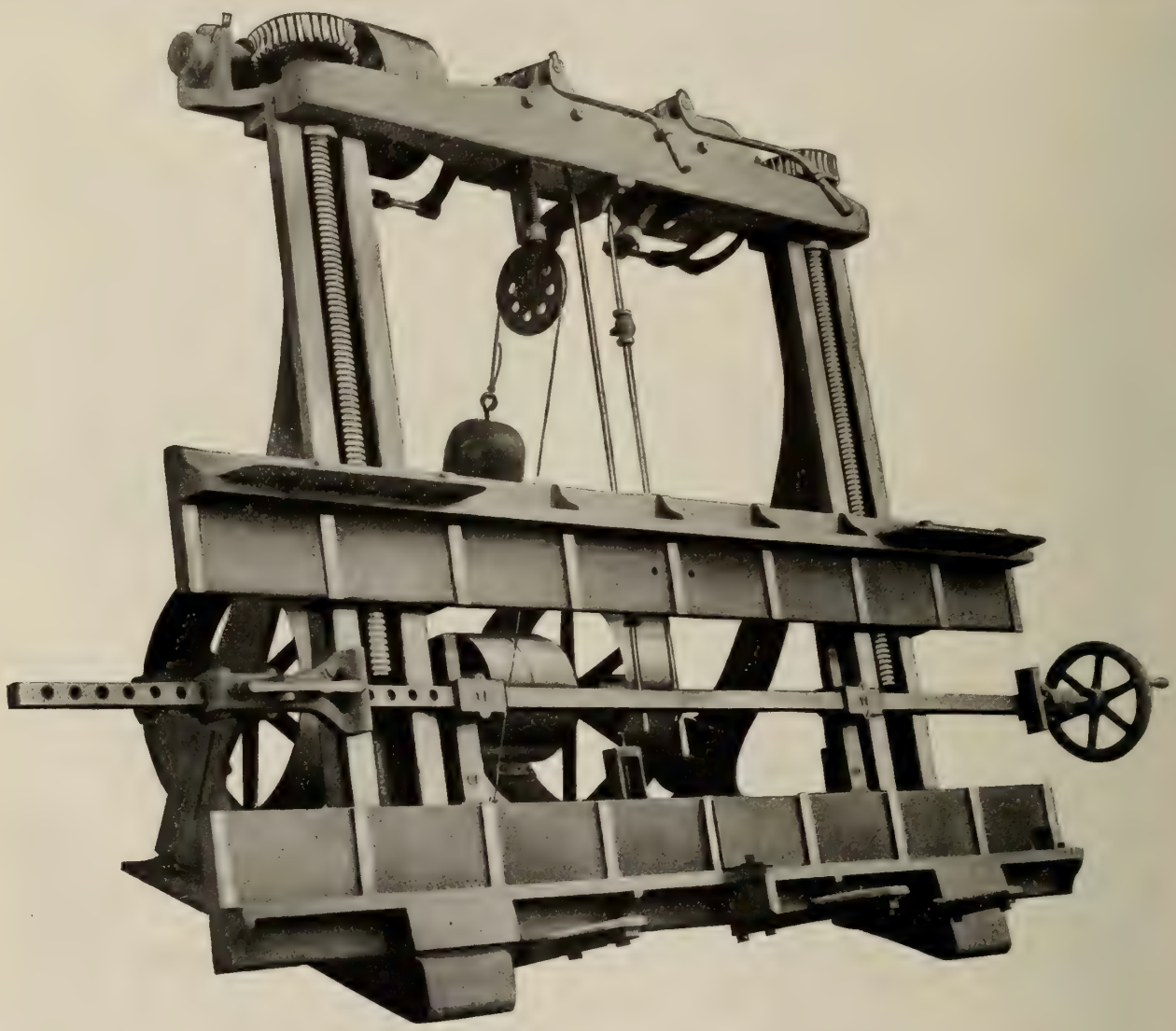
## A Veneer Press with a Reputation

We would like to give you particulars of this machine, because we can show you increased production and a better finished job. :: :: :: :: ::

**Better let us send you a folder about our Veneer Presses**

# Canada Machinery Corporation

GALT Limited



**No. 520 Upright Automatic Door Clamp.**

This is a massive, powerful machine, of great capacity, and particularly adapted to dowel doors or blind mortice doors, heavy or light, hard or soft wood, as the pressure can be regulated according to requirements and class of work.

# Canada Machinery Corporation

GALT, ONTARIO Limited

# Canadian Woodworker

**Canada's Only Woodworking Paper**

Published in the interests of Planing Mills, Saw Mills, Furniture and Piano Factories, Implement and Carriage Works, Boxmakers and Coopers.

The Circulation extends from the Atlantic to the Pacific and covers thoroughly all classes of Woodworkers in this immense territory.

**Wooodworker Publishing Co., Limited**

ARTHUR W. DYAS, President and Managing Director
RICHARD PEARCE, Editor
Phone Main 5048
**111 Mail Building, Toronto, Canada**
United States: E. J. MACINTYRE, 4057 Perry St., Chicago.

SUBSCRIPTION RATE.

Canada, United States, $1.00; Great Britain, Australia and other countries 4s 6d., per year; other countries, $1.50. Advertising rates on request.

**Vol. 9** **June, 1911** **No. 6**


## Shipping Canadian Apples in Boxes

While a great many packers still prefer the barrel to the box for the shipping of apples, there are others who are showing a decided tendency to use the box for the packing of the choicest of Canadian apples. The retailers like the box as it offers better opportunities for displaying the fruit.

Another advantage claimed in is favor is, that when the shipper's name is printed on the box it serves as a good advertising medium.

From what we can gather on this subject we are inclined to take the view that the box will gradually displace the barrel for the shipment of our choice Canadian apples.

## Explanation Called For

There was great surprise not only among millmen, but among the public generally at the statement, which appeared in the Colonist of Sunday under a Seattle date, and was as follows:

"What is said to be the largest individual lumber order ever awarded one firm in the Puget sound district was placed with a Seattle firm to-day by the Grant Trunk Pacific Railway. The contract calls for 8,000,000 feet of lumber, to be used in railway construction in British Columbia. The lumber will be sawed by Seattle mills."

We have made inquiries among the local sawmill men and have been informed that this order could have been filled here and that the Seattle prices could have been met. By this we do not understand that the local millmen know what the price to be paid is, but only speaking from ther general knowledge of the conditions they feel satisfied that they could fill the contract at prices as favorable to the company as any Seattle firm can. Under these circumstances we think the people of British Columbia and of Canada as a whole are entitled to some explanation of the reason why this great contract should have been sent to a foreign country.

The people of Canada are spending millions upon millions to provide the Grand Trunk Pacific with a railway from ocean to ocean, and when it comes to awarding a contract out of which Canadian industries could make a decent profit, alien manufacturers are given the preference. We think we are right also when we say that the contract between the railway company and the provincial government under which the company was given the fee of the site of Prince Rupert and certain other valuable concessions, provided that, other things being equal, the company shall purchase its supplies in British Columbia. The placing of this order is in direct opposition to this agreement.

We are indisposed to employ in this or any connection language which is unnecessarily severe; and we do not like to reach conclusions from insufficient premises; but it seems impossible to suggest any satisfactory explanation for this transaction, which on the face of it looks like a gross breach of faith on the part of the company. It is an extraordinary thing to go abroad that British Columbia cannot supply the timber necessary for the building of this railway. Certainly explanations are in order.

The above is taken from the Victoria Colonist (B. C.) and is quite in accord with the sentiments of the Canadian Woodworker.

## Re Sanitary House Trim

The styles in house trim have undergone a great change during the past few years, owing to several reasons. The chief, and we think, the most important, being a desire on the part of architects and builders to observe as far as possible sanitary methods.

There is a decided tendency on the part of those engaged in the work of designing mouldings to be used for interior trim and fittings, to avoid the old styles, with the many small members, and give us the plain effects, such as the square and flat face.

This is a step in the right direction both from a sanitary and artistic point of view. The old-fashion casing, the face of which was a series of beads, deep quirks or hollows, offered great lodging places for dust and incidentally gave a lot of trouble to the carpenter, also the painter and decorator—when cleaning up or finishing.

When the various hardwoods were first introduced it was found necessary in order to make the members stand out distinctly, to cut very deeply into the wood; this only added to their troubles.

The style of moulding most in demand to-day for hardwood trim is the bullnose. It has two advantages, it is easy to clean up, and little or no difficulty is experienced in keeping it free of dust; and then, the natural beauty of grain and figure is not destroyed or marred.

Another advantage that appeals more particularly to the manufacturer is that this class of trim may be run through the sander and but little time is required in cleaning up the edges.

We notice too, that the moulding used for door and panel work is severely plain. Ogee, for instance. Varied, perhaps, if the width exceeds one and one-half inches, by adding a cove.

Another feature, but not new, by any means, that is gradually coming into general practice, is to do away with the square corners when fitting base, by using a circle corner. The advantage of this when considered from a sanitary point of view, is unquestionably a step forward.

So general has the demand for this style of trim become that it is considered safe to stock up with it both in the hardwood and pine.

# Canada's Standing in the Woodworking Industry

## Exports

The exports of Canada in the lines connected with the woodworking industries are given below as prepared by our staff correspondent taken from the returns of the customs department. These figures are exports for one year ending March, 1911.

| | Cords | Value |
|---|---|---|
| Lathwood— | | |
| To United States | 400 | $ 1,600 |
| Logs, cedar, capable of being made into shingle bolts— | | |
| | Cords | |
| To United States | 35 | 202 |
| Elm— | | |
| | M. Ft. | |
| To Great Britain | 483 | 10,877 |
| To United States | 1,201 | 13,106 |
| Hemlock— | | |
| To United States | 778 | 6,946 |
| Other Countries | 127 | 635 |
| Pine— | | |
| To United States | 4,726 | 26,610 |
| Spruce— | | |
| To United States | 13,760 | 152,327 |
| All Others— | | |
| To Great Britain | 704 | 15,812 |
| To United States | 102,397 | 962,834 |
| Other countries | 340 | 4,104 |
| | 103,441 | 982,750 |
| Lumber, viz.— | | |
| To Great Britain | | 34,396 |
| Other countries | | 4,901 |
| | | 39,297 |
| Basswood— | | |
| To Great Britain | 331 | 11,755 |
| To United States | 3,514 | 75,844 |
| Other countries | 165 | 5,845 |
| | 4,010 | 93,444 |
| Deals, Pine— | | |
| To Great Britain | 59,689 | 1,406,444 |
| To United States | 5,315 | 115,529 |
| Other countries | 1,635 | 42,545 |
| | 66,639 | 1,564,518 |
| Spruce and other— | | |
| To Great Britain | 408,790 | 6,471,153 |
| To United States | 14,548 | 247,708 |
| Other countries | 12,634 | 220,149 |
| | 435,972 | 6,939,010 |
| Lumber—Deal ends— | | |
| To Great Britain | 19,920 | 310,295 |
| To United States | 674 | 6,888 |
| Other countries | 2,205 | 27,028 |
| | 22,799 | 344,211 |
| Logs, Laths— | | |
| To Great Britain | 15,637 | 37,558 |
| To United States | 667,603 | 1,627,818 |
| To Australia | 12,579 | 29,643 |
| Other countries | 4,382 | 11,016 |
| Palings— | | |
| To Great Britain | 528 | 10,290 |
| Other countries | 3,780 | 62,942 |
| | 4,308 | 73,232 |



| | | |
|---|---|---|
| Pickets— | | |
| To Great Britain | 4,186 | 21,196 |
| To United States | 27,176 | 148,290 |
| Australia | 3,661 | 21,865 |
| Other Countries | 30 | 642 |
| Planks and boards— | | |
| To Great Britain | 79,778 | 1,659,701 |
| To United States | 847,948 | 15,948,791 |
| Australia | 25,324 | 354,871 |
| Argentina | 100,447 | 2,276,327 |
| Cuba | 18,343 | 324,437 |
| And others | 57,459 | 970,959 |
| Scantlings— | | |
| To Great Britain | 35,584 | 434,534 |
| To United States | 41,532 | 571,723 |
| Argentina | 11,313 | 189,260 |
| And others | 473 | 7,315 |
| | 88,902 | 1,202,832 |
| Shingles— | | |
| To United States | 711,624 | 1,648,448 |
| British West Indies | 22,015 | 32,868 |
| Other countries | 1,918 | 4,445 |
| | 735,577 | 1,685,761 |
| Shooks— | | |
| To Great Britain | | 231,703 |
| To United States | | 8,323 |
| Mexico | | 9,050 |
| Other countries | | 40,986 |
| | | 290,062 |
| Staves and headings— | | |
| To Great Britain | | 24,904 |
| To United States | | 47,053 |
| Other countries | | 34,301 |
| | | 106,258 |
| All other lumber, N.E.S.— | | |
| To Great Britain | | 174,248 |
| To United States | | 197,792 |
| Other countries | | 22,648 |
| | | 394,688 |
| Match blocks— | | |
| To Great Britain | | 56,706 |
| To United States | | 6,095 |
| | | 62,801 |
| Masts and spars— | | |
| To United States | 148 | 456 |
| Other countries | 333 | 3,504 |
| | 481 | 3,960 |
| Piling— | | |
| To United States | | 170,734 |

| | | |
|---|---|---|
| Other countries | | 1,014 |
| | | 171,748 |
| Poles, hop, hoops, telegraph and others— | | |
| To Great Britain | | 78,521 |
| Other countries | | 30 |
| | | 78,551 |
| Posts, cedar, tamarac and—others— | | |
| To United States | | 34,228 |
| Shingle bolts of pine or cedar— | Cords | |
| To United States | 10,894 | 37,002 |
| Sleepers and railroad ties— | No. | |
| To United States | 1,049,272 | 356,701 |
| Other countries | 2,000 | 560 |
| | 1,051,272 | 357,261 |
| | Tons | |
| Timber, square, viz., Ash— | | |
| To Great Britain | 228 | 3,779 |
| Other countries | 19 | 390 |
| | 247 | 4,169 |
| Timber, Birch— | | |
| To Great Britain | 8,931 | 112,651 |
| To United States | 98 | 2,141 |
| Other countries | 156 | 2,214 |
| | 9,185 | 117,006 |
| Timber, Elm— | | |
| To Great Britain | 7,430 | 219,732 |
| Other countries | 67 | 2,442 |
| | 7,479 | 222,174 |
| Timber, Oak— | | |
| To Great Britain | 8,272 | 205,047 |
| To United States | 306 | 6,463 |
| Other countries | 121 | 2,565 |
| | 8,699 | 214,075 |
| Timber, Pine,red— | | |
| Other countries | 3 | 33 |
| Timber, Pine, white— | | |
| To Great Britain | 18,996 | 597,121 |
| To United States | 34 | 560 |
| Other countries | 25 | 1,093 |
| | 19,055 | 598,774 |
| Timber, square, all other— | | |
| To Great Britain | 917 | 11,205 |
| To United States | 246 | 2,982 |
| Other countries | 56 | 283 |

## Imports

The following figures are returns for twelve months ending March, 1911, and will give a general idea as to Canada's imports as affecting the woodworking industry.

| | | |
|---|---|---|
| Barrels containing petroleum or its products, or any mixture of which petroleum forms a part, when such contents are chargeable with a specific duty— | | |
| | No. | Value |
| From Great Britain | 3,488 | 3,486 |
| From United States | 41,430 | 41,003 |
| Other countries | 19 | 19 |
| | 44,937 | 44,508 |
| Barrels, empty— | | |
| From Great Britain | 2,076 | 1,349 |
| From United States | 81,309 | 90,055 |
| Other countries | 140 | 85 |
| | 83,525 | 91,489 |
| Curtain stretchers— | | |
| From Great Britain | | 191 |
| From United States | | 7,441 |
| | | 7,632 |
| | Galls. | |
| Varnish, lacquers, japans, Japan dryers, liquid dryers and oil finish— | | |
| From Great Britain | 20,016 | 41,961 |
| From United States | 73,734 | 119,797 |
| Other countries | 314 | 786 |
| | 94,494 | 162,444 |
| Window shade or blind rollers— | | |
| From Great Britain | | 1,905 |
| From United States | | 15,769 |
| | | 17,674 |
| | lbs. | |
| Glue, powdered or sheet— | | |
| From Great Britain | 1,243,891 | 94,095 |
| From United States | 453,751 | 38,939 |
| France | 15,032 | 1,737 |
| Germany | 388,149 | 26,626 |
| Other countries | 149,543 | 11,079 |
| | 1,037,828 | 80,757 |
| Pulleys, belt, of all kinds for power transmission— | | |
| From Great Britain | | 1,210 |
| From United States | | 39,136 |
| | | 40,346 |
| Handles, shovel, wholly of wood and wood handles for mf. of same— | | |
| From United States | | 49,906 |
| Handles of all kinds, Ash— | | |
| From Great Britain | | 287 |
| From United States | | 24,909 |
| | | 25,196 |
| Hickory— | | |
| From Great Britain | | 639 |
| From United States | | 73 |
| Other countries | | 64,956 |
| | | 64,956 |
| Lasts of wood— | | |
| From United States | | 52,953 |
| Mouldings, plain, gilded or otherwise further manufactured— | | |
| From Great Britain | | 96 |
| From United States | | 64,415 |
| Other countries | | 773 |
| | | 65,284 |

| | | |
|---|---|---|
| Refrigerators— | | |
| From United States.. .. ... | 969 | 37,652 |
| Show cases of all kinds and metal parts thereof— | | |
| From Great Britain.. .. ... | 658 | 6,689 |
| From United States.. .. ... | 1,562 | 24,761 |
| Other countries.. .. .. .. .. | 108 | 667 |
| | 2,328 | 32,117 |
| Woodenware, churns, wash boards, pounders and rolling pins— | | |
| From Great Britain.. .. ... | | 206 |
| From United States.. .. ... | | 16,699 |
| Other countries.. .. .. .. .. | | 151 |
| | | 17,056 |
| Pails and tubs— | | |
| From Great Britain.. .. ... | | 53 |
| From United States.. .. ... | | 13,797 |
| Other countries.. .. .. .. .. | | 37 |
| | | 13,887 |
| Manufactures of wood (not classified)— | | |
| From Great Britain.. .. ... | | 85,265 |
| From United States.. .. ... | | 1,469,118 |
| France.. .. .. ... .. .. .. | | 1,734 |
| Germany.. .. .. .. .. .. .. | | 20,882 |
| Other countries.. .. .. .. .. | | 9,680 |
| | | 1,671,944 |
| Sawed boards, planks, deals, plain or dressed on one or both sides when the edges thereof are jointed or tongued and grooved— | | ..... |
| | M. ft. | |
| From Great Britain.. .. ... | 1 | 45 |
| From United States.. .. ... | 22,849 | 315,576 |
| | 22,850 | 315,621 |
| Lumber and timber manufactured— | | |
| From Great Britain.. .. ... | 12 | 132 |
| From United States .. .. ... | 1 | 50 |
| | 13 | 182 |
| Umbrella, parasol and sunshade sticks or handles— | | |
| From Great Britain.. .. ... | | 6,850 |
| From United States.. .. ... | | 8,522 |
| Other countries.. .. .. .. .. | | 4,964 |
| | | 20,336 |
| Walking sticks and walking canes of all kinds— | | |
| From Great Britain.. .. ... | | 8,856 |
| From United States.. .. ... | | 9,395 |
| Other countries.. .. .. .. .. | | 863 |
| | | 18,414 |
| Veneers of oak, rosewood, mahogany, Spanish cedar and walnut, not over 3/32 of an inch in thickness— | | |
| From Great Britain.. .. ... | | 244 |
| From United States.. .. ... | | 245,689 |
| | | 245,933 |
| Veneers of wood, not over 3/32 of an inch in thickness— | | |
| From United States.. .. ... | | 53,133 |
| Furniture, house, office, cabinet or store furniture of wood, iron or other material, in parts or finished— | | |
| From Great Britain.. .. ... | | 136,184 |
| From United States.. .. ... | | 1,119,379 |
| France.. .. .. .. .. .. .. | | 4,942 |
| Japan.. .. .. .. .. .. .. | | 2,795 |
| | | 1,325,411 |
| Cabinet organs— | No. | |
| From Great Britain.. .. ... | 2 | 1,027 |
| From United States.. .. ... | 256 | 16,531 |
| Other countries.. .. .. .. .. | 1 | 216 |
| | 258 | 17,774 |
| Pipe organs— | | |
| From United States.. .. ... | 6 | 4,956 |
| Parts of organs— | | |
| From Great Britain.. .. ... | | 1,466 |
| From United States.. .. ... | | 25,146 |
| | | 26,612 |
| Pianofortes— | | |
| From Great Britain.. .. ... | 180 | 24,690 |
| From United States.. .. ... | 1,508 | 275,351 |
| Other countries.. .. .. .. .. | 9 | 3,395 |
| | 1,696 | 293,336 |
| Pianos, parts of— | | |
| From Great Britain.. .. ... | | 226,686 |
| From United States.. .. ... | | 8,154 |
| | | 234,840 |
| Piano, and organ players, mechanical— | | |
| From Great Britain.. .. ... | 1 | 16 |
| From United States.. .. ... | 94 | 25,737 |
| | 94 | 25,753 |

## Staining Glass

The art of coloring glass has been lost and refound, jealously guarded and stolen so many times in the history of civilization that it seems almost impossible to say anything new on glass staining. Yet a process has been discovered for making the stained glass used in windows which is a departure from anything known at the present time. What the Venetians and the Phoenicians knew of it we cannot tell.

The glass first receives its design in mineral colors, and the whole is then fired in a heat so intense that the coloring matter and the glass are indissolubly fused. The most attractive feature of this method is that the surface acquires a peculiar pebbled character in the heat, so that when the glass is in place the lights are delightfully soft and mellow.

In making a large window in many shades each panel is separately moulded and bent and the sections are assembled in a metal frame.—Chicago Tribune.

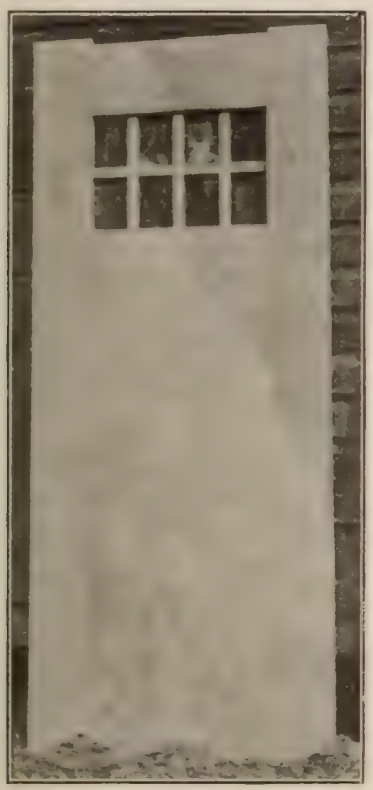
### Incorporation

Woodcrafts, Limited, has incorporated with a capital of $200,000, with head office at Calgary, Alta.

# Planing and Saw Mill

## Fir, a Popular Wood in British Columbia

For this article we thank the vice-president of the Burrard Sash and Door Company, Limited, of Vancouver, B. C., a woodworker who has been connect-



ed with the industry from almost its infancy and during its growth to the present wonderful proportions.

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The sash and door trade on the coast of British Columbia has undergone a change as astonishing as the general development of the country.

A few years ago the local demond was as easily pleased as the prairie market of to-day, it was possible to stock ahead with glazed windows and four and five panel doors with a certainty of disposing of them, but not so to-day. The only safe plan at the present is to keep the racks full of knockdown sash, but even this is becoming a doubtful proposition.

The influx of a large number of American builders and eastern architects has brought with it ideas of a new school.

For a man of moderate means and a fair sized lot, it must be a bungalow, which to-day has abolished the cottage of a few years ago.

The two light or four light window of equal panes must give place to the large bottom light, with short toplight, which is divided with marginal lights, squares, or vertical lights, or probably is filled with clear leaded glass, and in most cases stained glass in the more important rooms. And judging from designs of the opening season, the double hinge window will be obliterated entirely, except possibly in kitchen, pantry, and closets, where it is indispensible, and the casement sash will be the rule, in singles, pairs, either rabbated or mullion or in sets of three with centre sash larger and fixed, and transons over.

The conditions in the door trade are almost equal, although changes in the design of sash and door are limited. The old four-panel door is unknown; also the five panel. The five cross panel is still a strong seller and the six cross panel is coming in for ordinary work. But we have the three cross and 2 vertical an inexpensive variation of this panel, the three panel or craftsman which is becoming popular but is an extravagant door to make, especially in regard to panel stock. The one panel and also the two panel doors are in demand for the better class trade. These changes are largely due to the change in material. The one time popular cedar door is now almost entirely used for export, owing to the lighter weight which is a considerable item in car shipping. The fir door is the rule to-day in all ordinary work, chiefly because cedar is becoming more expensive as the near supply is exhausted, and also because of the recognition of the real beauty to be found in the flat grain fir, which for variation of figure and effect, is equalled by no other wood. This crowing of fir beautiful is responsible also for the eradication of the decorative members in mouldings, casings and inside

finish of all descriptions for the simple reason that they break and mar the natural grain of the wood.

Square and ball nose finish is the rule and if mouldings are used they are designed to give full play to the hand of nature. Door stock fir is cut vertical grain for the framing, because it dries and works

better,—for fir, unless carefully handled, checks and warps very badly in drying—particularly the flat grain— and also because it is more likely to stay "put," for fir (especially flat grain) of any thickness, is never dead, is susceptible to atmospheric changes and if a door is cramped with insufficient play for the panels and exposed to moisture the panels will either belly out and burst or they will force the framing.

There is some difference of opinion as to the best methods of manufacturing the fir door. Both the chain mortiser and the dowel machinery have led to considerable disappointment, and it appears to the writer that the manufacturers of these two lines of machines would do well to look for cutters of a different character to meet the special requirements, for fir doors are here to stay. A machine manfactured in New Westminster is undoubtedly a step in this direction. It consists of a battery of inserted tooth saws (one for each rail) adjustable to the length of the door, against which the style is moved by foot lever or power.

So one may imagine the increasing wealth of the population of British Columbia is causing a demand for homes of a magnificance undreamed of a few years ago, and Mexico, S. America, the Philippines and Australia are being called on more and more each year to supply their finest hardwoods for the embellishment of the splendid homes of to-day.

All this of course means change in plant and manufacturing methods. While to-day the veneered door of the east can compete successfully, it is only a question of time for the methods of the east, the results of many centuries of training, to be learned by the west in as many years. And then, who can tell, with the opening of the Panama Canal the tide may turn.

The cuts of doors we show are of two of the most popular sellers in the West and are the product of the Burrard Sash and Door Company, Vancouver, B. C. Whatever defects may appear are due to the fact that the pictures were taken under most adverse circumstances.

# WINDOW SASH, PAST AND PRESENT

**Continued from May Issue.**

A great many planing mill men are gradually giving up making window sash, claiming that it has ceased to be a paying proposition.

High wages, cost of material and the difficulty in getting men to direct the work are some of the reasons advanced as being the cause of their retiring from this branch of the trade. Sash making is a simple job when handled in an intelligent manner. But as one manufacturer expressed it, there is too much time wasted over the work. We have seen some

Order Book No........ Dundas, Ont June 22 1911

H.W Hare Co, Limited.

Bill of Sash For ........ [illegible]

How Ship ........ Deliver to 44 Barnes St. July 6th

| Shop Number | | Article | Size | | Style | Remarks |
|---|---|---|---|---|---|---|
| 1 | 4 | P. Sash | 2 4⅞ × 5 2⅝ | 1¾ | 2 L [illegible] | |
| 2 | 9 | Single | 2-8½ × 1 11 | - | 3 L cellar | Water Bar in [illegible] |
| 3 | 8 | P. Sash | 1 8 × 5 6 | - | 2 L | make top ½ |
| 4 | 1 | | 2-8 × 5-6 | -- | - | - - - - |
| 5 | 6 | - - | 2-6⅝ × 4-6⅝ | - | 2 L | usual |
| 6 | 8 | transom | 1-9½ × 3 6 | - | 1 L | [illegible], glass stop |
| 7 | 4 | - - | 2 7 × 3 6 | - | 1 L | - - - |
| 8 | 4 | - | 2-0 × 2-6 | - | 1 L | - - |
| 9 | 2 | | 1 1 × 2-3 | 1⅜ | 4 L | Porch |
| 10 | 2 | Pair sash | 2-8 × 4-11 | -- | 9 - | Bay window See Sketch |
| 11 | 4 | - - -- | 1 8½ × 4 11 | - | 5 | - -- - - |

things done that would help to bear out this statement.

Stepping into the sash department of one of the largest planing mills in Canada, we saw two hundred pairs of sash ready for shipment. This batch of sash were all the same size and style and were for a Mr. Thoroughgood, which is a pretty long name and one that must have taken some time to write, but nevertheless it was written on each style, as was also the shop number.

For sheer waste of time this beats anything we ever saw. Waste of time, bah!—it was worse. We noted a few other samples of time wasting in this plant, and it is just as well to observe here that this is not the only place we have seen similar conditions that lead us to believe that high wages and cost of material are not the only factors that compel some to give up this line.

To evolve a system suitable to every shop is almost an impossibility, but the following with slight modifications will be found to give satisfaction and cheapen the cost of production no matter whether the sash trade is large already or if there is a desire to build up one.

The order form we show may be used for either sash or door, but it is better to make out sash on separate sheets, as they are usually shipped weeks before the door. A glance at the cut shows how the order is to be made out for the foreman who will number each item. Starting at number one he can continue up to one thousand. By the time he has reached that figure it is safe to say that all sash made up to seven hundred will have been shipped. When the job is finished the bill can be returned to the office or handed direct to the shipper who will find the number of each pair or piece of single sash corresponding with the bill. This is easy for him. All he has to do is to note the numbers which may read, number one—4 pair sash; number two—9 single—and so on right down the list. There is no time lost when this system is in use.

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A few words to the foreman. Any sash man can make sash, but it seems that very few can make them quickly enough to get good profits. Not because they do not word hard. Sometimes they work too hard in doing a lot of unnecessary work. When laying out styles, number each one, also the rails. But if you are making a big run with, say, fifty different sizes and styles and at the same time are running through a lot of twenty pairs or more of the one size, there is no need to number the stiles for them. You can mention to the bench men that there is such a batch they will find them alright. Its funny how few men there are who take advantage of these little time savers.

For instance, what is the use of making a face mark on the rails when running through a batch of the same size? The man on the tensioning machine will watch the grain, and the sticker hand can be depended upon to keep the best edge up. Many foremen complain that the bench hands give them a lot of trouble and take too long to assemble the sash. This can be avoided if the sash are to detail or have fancy top lights, by making a sketch on the rails of each kind.

There is no better adjunct to a sash shop than a foor power mortiser. One can be had new for the very low sum of twelve dollars. It often happens that a hurry-up order comes in for a few pair of sash. If you carry sash stock in the length such orders can be filled without disturbing the work in hand as the rails can be trimmed on the hand saw.

These are only a few time savers, and are given as leaders. Others may occur to yourself from time to time. Take advantage of them.

## A Foot Power Mortice

This is a handy tool to have in the shop when a hurry-up order comes in for a few pieces of sash or other framing.

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Herbert Sheffield, a young crippled employee of McLachlen Bros.' mill at Arnprior, Ont., had his hand nearly severed at the wrist.

## Noticed on the Editor's Travels

### The Proper Care of Canvas and Balata Beltings

Some men have a lot of trouble with canvas and balata belts. The reason can generally be traced to the fact that they are in the habit of punching a hole with a belt punch. This is a great mistake as an examination will show that canvas belt is woven together in three or more plies. If the pointed end of a file or awl is used the fibres can be forced apart, making sufficient space for the lace to be passed through.

A double row of wire lacing is a good method, but some prefer the crescent belt fastener—no holes being required.

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### Right way to put on spliced leather belts

The general opinion has always been that the correct way to put spliced belts on the pulley was to place them so that the splice or joint would run on the pulley side and against the splice on the outside of the belt. The inside can take care of itself, as the joint is kept smooth by the contact and pressure of the pulleys (especially is this the case where any belt dressing is used). It is always the outside of a splice that opens up and causes trouble. In running over the pulleys the tendency is to open the splice on the outside and close it on the inside. After the thin edge once starts to open the air is forced under it (as it runs thin edge first on the outside) and it soon becomes detached. Instead splice belts should be run with the splice on the pulley side so as to offer no resistance to the air on the outside of the belt.

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### Keeping the Racks Full of Dressed Stock

In a mill we visited recently we were struck with the systematic manner in which the dressed stock was being taken care of.

Racks under a covered shed had been provided for all the usual dressed lumber likely to be called for in the building trade—large racks they were too, holding many thousand feet—placed so that no difficulty would be experienced in getting at any particular kind. The advantage of having such a well kept rack can hardly be overestimated, both from the customer's point of view and for the great convenience it must be to the workmen in the shops.

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### Maple Floors in the Mill

In a planing mill we visited recently the floors are of maple laid diagonally over a pine flooring which had been laid straight and, although much heavy trucking is done, especially on the lower flat, two years' wear has convinced the owner that this is the most profitable floor they have ever experimented with.

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### Wooden Sash Pins

We have traveled a lot in our time and have seen many things surprising, but the latest surprise we received was when going through a shop in a north York town this month to see the old fashioned wood sash pin in use. It may be that this firm are prejudiced against the metal pin which is vastly superior to the wooden pin, which went out of style with the crinoline skirt.

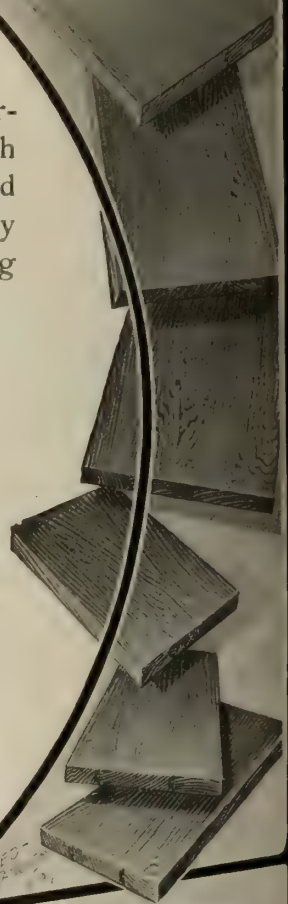
# The Linderman Automatic Dovetail Glue Jointer

## Saves Eighty Per Cent.

By taking your lumber from the cut off saw and in one automatic operation jointing, joining, gluing and sizing the panel to the exact width without lumber waste, besides the saving the dovetail method would mean very much to your factory, because it is a short cut and does away with the several handlings and gets the finished stock to the finishing room without delay.

## The Tapering Wedge Dovetail Glue Joint

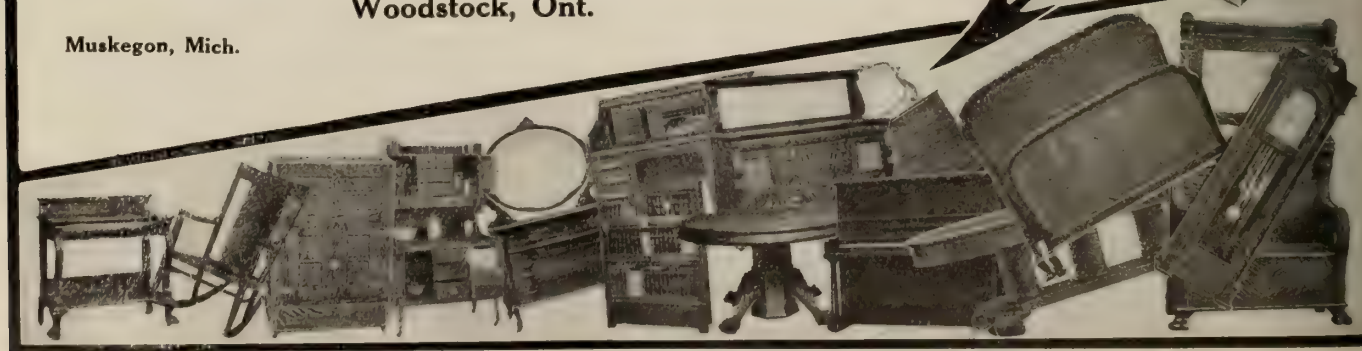
gives you a joint that's stronger than the natural wood, and it's in use in many furniture factories in the States and several in Canada who are making the best solid furniture. The Tapering Wedge Dovetail Glue Joint keeps the glue in the joint and forces it into the pores of the wood, welding it together so that it cannot come apart. We would like to explain the automatic method of jointing lumber to you and if you will write us, you will get the full information and the saving it would make you.



## Canadian Linderman Co., Ltd.

**Woodstock, Ont.**

**Muskegon, Mich.**



# The Carpenter and Builder

## Building Construction

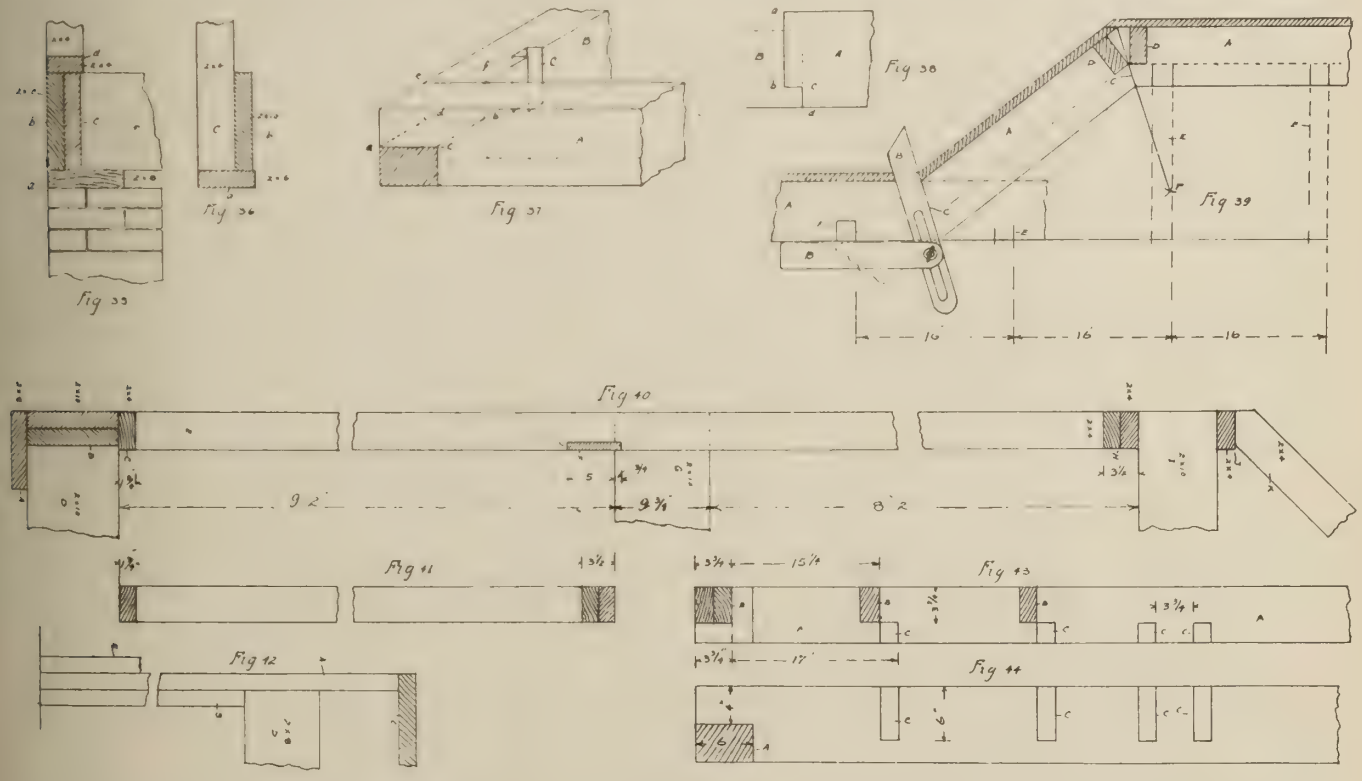
(Continued from May Issue)

Fig. 35 shows one method of constructing a box sill by spiking two timbers together around the outside of the building as b-c and laying a plank on the wall for them to rest on as at a; a 2 in. by 4 in. as at d is then spiked on top of the joist for the upright timbers or studs to rest on. The timber C should be spiked to the ends of joist e before the outside timber b is put in place. Sometimes there is only a single timber put around the outside and the end joist set back as shown in Fig. 36 at b, the 2 in. by 4 in. studs will then rest on the timber that rests on the wall. This gives you a joist inside of the studs for your flooring to rest on and saves labor and material.

Fig. 37 shows a solid sill which is in general use. The corners are halved together as shown at a-b-c-d-e-f by cutting out half of each timber. When framing timbers, always measure from the top of the timber, then when the timber is framed and put together, if there should be any difference in the thickness of them, the top will be even. Notches or gains are generally cut into solid sills for the ends of the joist to rest in. If the sills are 6 in. by 8 in. the 6 in. edge would beup, and if 2 in. by 4 in. studs are used the gains shuold be marked the thickness of the studs or 3¾ in. from the outside of the timber to the gain. At the bottom of the gain there should be at least two inches of the wood remain for the joist to rest on. If 2 in. by 10 in. joists are used they are generally framed as shown in Fig. 38, by cutting out a notch as at b-c-d, to rest in the gain making the distance a-b so that the joist will be 1¾ in. above the sill, which will also bring the bottom of the joist about even with the bottom of the sill A 2 in. by 4 in. can be then spiked on top of the sill at the end of the joist, which will make a tight joint and prevent mice from getting up between the walls, which every builder should take great care to do when putting up a new building.

Fig. 39 shows the projection, as of a bay window, A-A-A being the sills. The sills around a bay window are generally mitered. The bevel at B-B shows how to hold the bevel to get the required angle, by making the blade of the bevel even with the angle on each side of the timber. This can be done by laying one timber across the other at the required angle as shown by the dotted lines. Another way is to lay out the required bay on a board at a scale of ¼ in. to the inch. Set your compass at any convenient space and proceed the same as described in Fig. 3, March issue of the Woodworker, to bisect an angle. The line C-P will be the required angle. The 16 in. marks represent the floor joist spaced 16 in. centres. Notice the studs at D-D which should be set so that the inside edges can be spiked together; the outside sheathing can be cut as shown by putting on one side and cutting it at an angle on a line with the front of the bay, then let the boards lap over each other as shown.

Fig. 40 shows how to lay off an outside wall studding. To find the height of the ribbon which carries the second story joist. The height marked on the drawing is 9 ft. 2 in. between joist. In this plan



we show the top edge of the ribbon board at F to be ¾ in. higher than the bottom of the joist and the second storey joist have notches cut in and fit over the ribbon board. This is done so as to have the joists all even on top, as they are not always of the same width and, by measuring from the top to the joist for the notch, the joists will all be even. Sometimes the ribbon board is put down so that the joist will rest on top of the board without being notched. The top of the ribbon will then be even with the bottom of the joist. When joists are notched it is better to make a pattern.

Take a 1-inch board about 2 feet long and the full width of the joist, cut it the same as the joist is to be and mark the joist by using the pattern. After finding the height of the ribbon, measure down the width of the ribbon for the gain to be cut into the studding for the ribbon. The distaoce from the first floor joist to the second storey joist is as marked 9 ft. 2 in.; if a plate is nailed on the sill as at C the studs must be cut shorter the thickness of the 2 in. by 4 in. Now allow for the second floor joist which is 9¾ in. then 8 ft. 2 in. to the attic floor joist allowing for a double plate on top of the studs which is 3½ inches. The measurement from the second storey joist to the attic must be 8 ft. 2 in. less 3½ in. or 7 ft. 10½ in., making the full length of the stud 9 ft. 2 in. less 1¾ in. equals 9 ft. ¼ in. plus 9¾ in. plus 7 ft. 10½ in. or 17 ft. 8¾ in. between top and bottom plates. When framing studding of this kind you should always mark the bottom end of the timber with a heavy pencil, so as to save time when raising the frame work and have the right end of the studs down. The attic floors joists generally rest on the double plate; a 2 in. by 4 in. is spiked on top of the attic floors joists for the rafters to rest on.

Fig. 41 shows an outside bearing partition stud with a single plate at the bottom and a double plate at the top. The full length which is 9 ft. 2 in., including the plates, take away 3½ in. and 1¾ in. for the plates and you have 8 ft. 8¾ in. left for the length of the studs.

Fig. 42 shows the studs at the side of an opening. The opening is more than four feet wide and requires an extra strong header to carry the weight above. By spiking two pieces of 2 in. by 8 in. timbers together as shown at D, it will make a header strong enough for any opening six feet or less in width, if more than six feet wide 2 in. by 10 in. timbers.should be used. The stud A is put in the full height of the ceiling and the stud B stops off under the header D to give bearing for D or the header to hest on. A short piect of studding should be nailed on the outside of the double studs as at E to nail the ends of the base to, as the casing will cover the thickness of the two studs and not leave anything to nail the base to.

Fig. 43, A-A shows the top of a solid sill, B-B-B studs. C-C the top of gains for the floor joist.

Fig. 44 shows a side view of the same sill C-C-C, the gains which are 6 in. down from the top and 3¾ in. in from the outside of the sill, as shown in Fig. 43, to the gain. At A is shown a halved joint 4 in. down from the top. To lay out for the joist, commence at the left hand end and measure 3¾ in., the width of 2 in. by 4 in., from this measure 17 in. and then 16 in. Always lay your joist on the same side of the space mark which will bring them 16 in. centres. You will notice two joists close together, 3¾ in. apart; this should be done where there is a hot air pipe to pass through between the joist into the partition, then it will not be necessary to cut away any timbers. When it is required to have a longer sill than what timbers can be required, it will be necessary to make a splice. This splice should be a halved splice and not less than one foot in length.

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## Calls on the Trade

### T. H. Handcock, Bloor Street West, Toronto

This firm's plant was evidently planned by someone who had had previous experience in placing machinery. They manufacture in a large way everything required in the building trade and make a specialty of veneered work and hardwood floring. The lumber yard covers an immense space, this being necessary as they are wholesale as well as retail dealers in lumber, lath and shingles.

### Brennan and Sons, Hamilton

The planing mill and lumber yards of this firm are situated in a fine locality. They do a large business in all building supplies. It would be difficult to feature any particular line as Brennan and Sons manufacture in a highly satisfactory manner everything that enters into house construction, both in the pine and hardwoods. They report business as being good.

### The Burrie Planing Mill, Thos. Rogers, Proprietor, Builder and Contractor

This is an up-to-date plant for the manufacture of sash, doors and blinds, turned work, stair rails, newels and balusters. They make a specialty of fine interior finish. The racks are well stocked with mouldings, flooring and dressed lumber. Business is very good and prospects bright for the season's trade.

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J. W. Woolnough, Toronto, is manufacturer of display cases, mirrors and other store and office fittings, also a furniture repairer and re-polisher. He reports business with him as being very good.

### Winsor and Woodley, Toronto

Winsor and Woodley, Toronto, carpenters and builders, established 1887, besides being contractors, enjoy a fine jobbing trade, the extent of which can be guaged by the fact that from fifty to sixty men are employed, mostly in repairs and alterations. This firm also have a planing mill which enables them to manufacture stock required in their own business. They expect to keep their full staff on all summer.

### The Ball Planing Mill Co., Barrie, Ont.

The Ball Planing Mill Company, Barrie, Ont., manufacturers and dealers in rough and dressed lumber, door frames, sash and blinds, hardwood flooring, etc., report business as being very good. Large quantities of their output are being placed among the farmers in the surrounding district. They also do a good local trade in alterations and repairs.

Wm. Cane and Sons, Limited, Newmarket, Ont., manufacturers of all kinds of woodenware, have a very huge plant with saw mill in connection. This firm are doing a rushing business in general woodenware. The editor had the pleasure of a few minutes conversation with Mr. Cane on trade conditions.

### Two Millions Increase in Building Permits
### Great Activity in Building Trades an Index of Toronto's Unparalleled Prosperity

Statistics are dry things at times, but occasionally they speak with telling eloquence. Such are the sta-

tistics issued by the architect's office regarding the building permits issued by the City of Toronto, from January1 to May 31, 1911.

The number of building permits issued during this period was 2,691, as compared with 2,148 for the same months last year, i.e., a very respectable increase of 543.

But it is in the value of these building permits that the marvellous story of Toronto's steady progress and abounding prosperity is writ large. The approximate value of buildings covered by permits issued from January 1 to May 31 of this year was $9,555, 513. For a similar period of 1910 it was $7,578,008. That is in one year these values have increased by the huge sum of $2,037,415. There's an eloquent tale of Toronto's unparalleled prosperity.

During the month of May of this year, 1,258 permits were taken out for buildings, valued at $2,643,755. For the corresponding month of 1910, the record was 956 buildings, valued at $1,870,350. The number of new buildings for which permits were issued from January 1 to May 31 of this year was 3,764. Last year it was 3,090.

### Hamilton, Ont.

Building Inspector Anderson reports that the permits for May reached $539,005. This is the largest total for May in seventeen years.

### A New Industry
### Will Supply Building Material of all Kinds

Woodstock has another new industry, a first-class up-to-date planing mill, the proprietors being T. D. Broom and Son, the well-known contractors and builders of that city. The new factory, which has just been completed, is located at the corner of Canterbury and Beale streets, and has started off with a staff of some ten hands. The senior member of the firm was connected with the Woodstock Lumber and Manufacturing Company for a number of years, and when this company decided to go out of the jobbing trade, Mr. Broom decided to go into business on his own account. His new planing mill is equipped with modern machinery and is especially adapted for manufacturing everything in the building line. The firm take contracts for erecting buildings or for supplying the necessary materials.

### A Wonderful Invention

The Hunnable Sash Lock and Window Adjustment Syndicate, of Fernie, B.C., have opened an office at 14 Main street east. This firm are putting on the market a combined sash lock, fastener, opener and adjuster. By this contrivance sash cords, weights and fasteners are superfluous. This means a saving of about three dollars on every window. It is a cheap and easy method of ventilation. It locks the sashes, preventing outside intrusion. Builders, contractors and the general public are invited to call at the office and see this wonderful attachment in action. It sells for 75c.

### Building Operations in Canada During 1910

The total value of the business erected in 79 localities was $113,121,783. Of this total, Toronto, Ont., contributed $21,127,783, being, as in 1909, 1908, 1907 and 1906, the locality in which building was most active during the year. The city of Montreal, Que., with $15,815,859, stood second; the city of Winnipeg, Man., with $15, 116,450, stood third; the city of Vancouver, B.C., with $13,150,365, stood fourth; the city of Calgary, Alta., with $5,589,594, stood fifth and the city of Ottawa, Ont., with $3,022,560, stood sixth.

There were increases in the amount of building during 1910 at Sydney, N.S.; Sydney Mines, N.S.; Amherst, N.S.; St. John, N.B.; Quebec, Que.; Sherbrooke, Que.; Montreal, Que.; Westmount, Que.; Outremont, Que.; Maisonneuve, Que.; St. Johns, Que.; Cornwall, Ont.; Peterborough, Ont.; Toronto, Ont.; Niagara Falls, Ont.; St. Catharines, Ont.; Hamilton, Ont.; Brantford, Ont.; Guelph, Ont.; Berlin, Ont.; Waterloo, Ont.; Preston, Ont.; Elmira, Ont.; Stratford, Ont.; Sault Ste. Marie, Ont.; Port Arthur, Ont.; Winnipeg, Man.; Brandon, Man.; Regina, Sask.; Moose Jaw, Sask.; Saskatoon, Sask.; Prince Albert, Sask.; Edmonton,fi Alta.; Calgary, Alta.; Medicine Hat, Alta.; Red Deer, Alta.; Fort Saskatchewan, Alta.; Vancouver, B.C.; Victoria, B.C.; Victoria district, B.C.

### Hamilton's Building May Pass the $4,000,000 Mark

Hamilton's building figures this year are expected to pass the $4,000,000 mark, which will be nearly double the value of permits issued last year. The record was set this year for new houses has never been equalled in the city's history.

### A Very Satisfactory Belting

"Maple Leaf" brand stitched cotton duck belting is filling a long felt want, in that it is one of the strongest and most efficient belts on the market for transmission of power.

It is said that it costs only half as much as leather or Balata belting, and fully 25 per cent. less than a good rubber belt.

As a main drive belt, "Maple Leaf" cannot be excelled, is the claim of the sole manufacturers' The Dominion Belting Company, Limited, of Hamilton Ontario. They will be pleased to submit samples and quote prices. A. No. 1.

### Will Rebuild Mill
### Tracy Station Lumber Mill Plant of Mr. Gilbert Smith Will Equip New Mill of His at Burton

Since the McLellan-Smith sawmill at Burton, on the St. John River, Fredericton, N.B., was destroyed by fire there has been more or less speculation in lumber circles as to what might be done towards re-building. For some time it has generally been believed that the old mill site would be forever abandoned. It is now settled, however, that such is not to be the case, and Mr. Gilbert Smith, of the late firm of owners of the mill destroyed, has decided to establish a new lumber mill there upon his own responsibility. To this end he has completed negotiations to secure the mill premises in his own right, and during the coming week he will begin to remove the mill machinery of his present plant at Tracy Station on the C. P. R. down to the now vacant mill site at Burton.

While working around the machinery at his mill, at Malone, on Friday, Bert Mott, of the Frankford Cooperage Company, had the misfortune of having almost all the fingers severed from his left hand. He was in the act of tightening a running saw when the wrench he was using slipped, thereby precipitating his left hand into the saw.

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Send your address and receive descriptive circular of Glue Heaters, Glue Cookers and Hot Boxes with prices.

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Ends all troubles with WIRE-LACED BELTS. Insures perfect spacing of lace holes, perfect joints, and smooth running, long wearing belts. Instantly adjusted to any size belt, on either side or edge, and the holes punched through the Gauge quicker than without it. Pays for itself many times over in time and annoyance saved.

Mailed to any address on receipt of $1.00. Money back if you're not satisfied after trial.

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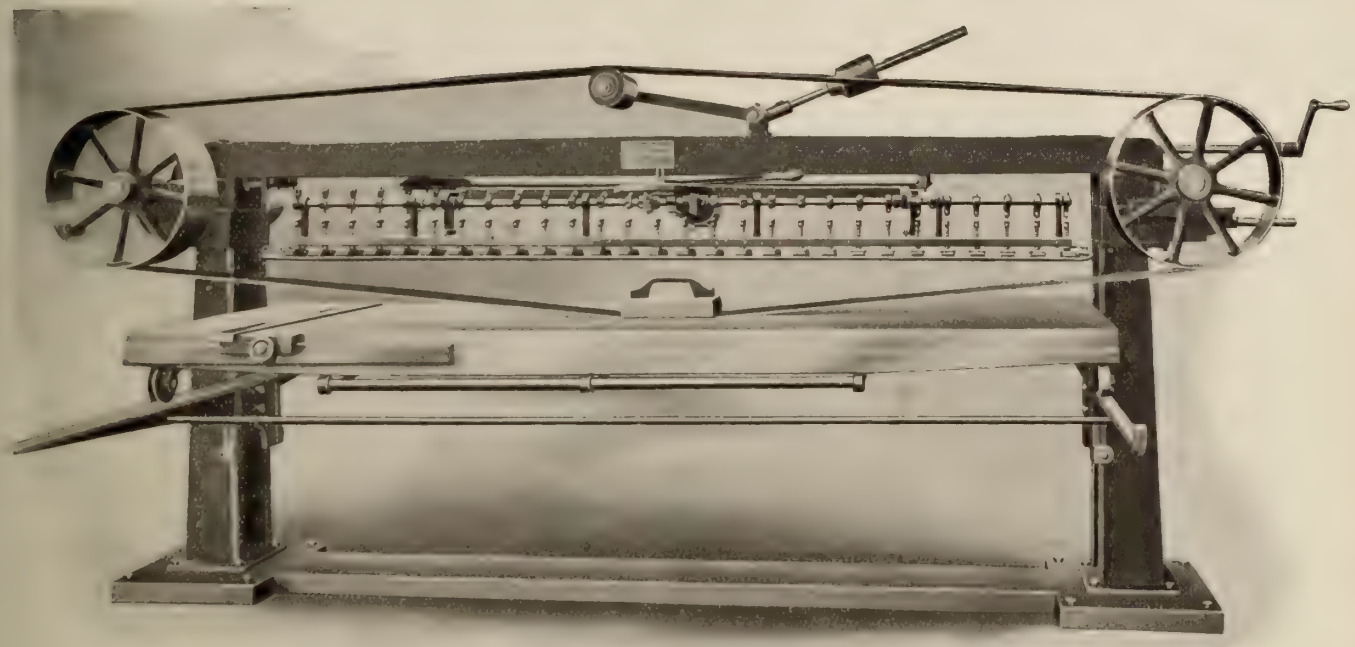
## When you Think of Sanding, Think of the Schimmel

# The Schimmel Spiral Belt Sander



## The Standard Belt Sander of the World

(Cut shows Spiral Contact Device pushed back and sand belt clear for the hand block.)

The Schimmel is installed in over 200 of the leading furniture, piano, interior finish, fixture, sash and door and allied wood working shops of the United States, Canada and Foreign Countries. It is radically different and superior to the hand block and mechanical hand block device. Owing to the flexible nature of the contact pad and to the absolute control which the operator has over the cutting point of the sand belt it is the only machine capable of perfect results at high speed. Consequently the most economical belt sander not only in time and labor but also in materials and sand belts.

The Schimmel Spiral Contact Device is the only method of applying the sand belt to the surface which permits of high speed in operation and produces a perfect surface. Ask the factory that is operating them.

Tell us your sanding needs. We manufacture Belt Sanders for every purpose. Prices from $100.00 to $550.00.

---

## Schimmel-Reid & Company, Faribault, Minn., U.S.A.

**Manufacturers of Sanding Machinery**

of all parts of the automobile which can be made from it to advantage, nevertheless, wood holds an important place in the industry.

All motor cars contain some wood in the bodies and in many cases the entire tonneau or limousine, as the case may be, is constructed of wood. For this purpose poplar is principally used and in many cases it is required in exceedingly wide plank so as to bend into the proper form.

For the curved backs of the limousines 3-ply stock is generally built up from thin poplar. Sometimes ash is used in constructing certain portions of the body. Mahogany is frequently used in the dash or in other exposed parts which are finished in the natural wood. The running boards are frequently made of ash. Hickory is employed for the wheel spokes. When the automobile top is supported on wooden bows, rock elm is used.

Even in the case of the so-called metal bows for supporting the top, the sheet metal generally contains a fiilling of wood and this filling is made up of elm or ash.

The steering wheels are always made of some high grade wood such as mahogany or rosewood. Naturally in the pattern department of the automobile factory considerable quantities of white pine and mahogany are used for the construction of patterns.

Despite the fact that so much metal enters into a modern car, there are few similar manufacturing lines which make heavier demands on the wood merchant. Everything that is supplied to the automobile factory must be of the highest class.

## A Boom Year

Now it begins to look as if this year 1911 is to be Canada's greatest boom year.

Business is remarkably good all over, and the Canadian west is likely to have an output of two hundred bushels of wheat—almost double that of any previous year. It will keep the three railways busy to handle it.

The Canadian banks will have to double their capital, and the Canadian cities and towns are going ahead in a remarkable way. The farmer will have plenty of money to meet his obligations.

Even the United States may have a year of material prosperity, in spite of the political uncertainty

Toronto may be carried off her feet with the rush of business.

## Request for Information

Editor Canadian Woodworker

Dear Sir—Could you inform me as to the best way of soaking glue in order to get good results.

(Signed) Inquirer,
Newmarket, Ont.

## Soaking and Heating Glue

The best results can be obtained by observing the following rules.

When soaking ground glue put water in the pot first and keep stirring while adding the glue. A somewhat different method is necessary for soaking flake and cake glue, which are put into the pot first, with just enough clean, cold water added to cover. Set the pot in a cool place and allow the glue to soak from one to two hours. Heat from 125 to 150 degrees, being careful not to let it burn, and above all things, keep the pot perfectly clean.

## Trade Inquiries

The following inquiries have been received from English and other countries relating to Canadian trade. The names of the firms and their addresses may be secured by interested parties by writing the Enquirers Department, Canadian Woodworker.

Any of our readers who are answering these inquiries, should not fail to forward references, particularly if bankers' references.

Please quote the reference number when requesting addresses.

1. **Dining and drawingroom chairs; upholstered goods**—An English firm manufacturing dining and drawing-room chairs and upholstered goods desires to enter the Canadian market.

2. **Water-tube steam boilers**—A north of England firm would like to interest Canadian manufacturers and others in their water-tube steam boilers.

3. **Clear pine**—A London manufacturing firm wishes to be placed in correspondence with Canadian shippers of clear pine who are in a position to ship supplies to South Africa.

4. **Prime birch and white ash**—A London manufacturing firm asks to be placed in communication with resident Canadian firms who can supply from stock carload lots of prime birch and white ash cut to dimensions.

5. **Agency abroad**—A correspondent in London is desirous of securing the representation of Canadian manufacturers.

6. **Maple logs and planks**—A Liverpool firm who are large importers of maple in logs and planks are prepared to receive offers from Canadian shippers.

7. **Agency abroad**—An Englishman established in Birmingham is open to act as sole sales agent for capable Canadian manufacturers; has wide sales experience, besides extensive connections in Great Britain, Europe, South America, Australia and New Zealand.

564. **Machine oil**—A firm in Cartegena desires to be placed in communication with Canadian exporters of machine oil. Catalogues and quotations f.o.b. New York required.

565. **Asbestos**—A firm in Cartegena desires to be placed in communication with Canadian exporters of asbestos. Catalogues and quotations f.o.b. New York required.

TheComox, B.C., sawmill was completely destroy ed by fire last month, together with considerable piled lumber, the office, books, and accounts. The total loss amounts to $9,000, with no insurance. The mill had only been erected about nine months ago, upon the destruction of the old mill by fire.

# Boxes and Cooperage

### Tight and Slack Cooperage, 1909

(Continued from May Issue)

The information as to the amount of cooperage stock manufactured in Canada in 1909 is based upon reports received from 128 firms. The total value of the cooperage stock manufactured in Canada in 1909 was $1,842,235; the value of the tight cooperage stock amounted to $247,116 or 13.4 per cent. of the total; the remainder, $1,595,119, or 86.6 per cent. of the total, represents the value of the slack cooperage stock.

### Tight Cooperage

The tight cooperage industry, the making of barrels for the containing of liquids, reaches but small proportions in Canada. The large users of tight cooperage, the shippers of whisky, beer, ale, wines and oils, import from the United States either their barrels, their staves and heading, or the logs from which to make this stock. The reason for this is that there are in the forests of Canada no oak, the only wood yet found to be suitable for the manufacture of the high grade tight cooperage required for the handling of these products for which in Canada are used the largest quantities of tight cooperage.

Table I., which shows the quantity and value of tight cooperage manufactured from different kinds of wood in 1909, represents only what was manufactured in Canada and takes no account of the large quantities of barrels, kegs and staves, chiefly of white and red oak, which were during the year imported from the United States.

| Kind of Wood. | Sawed. | | | Ale and Beer | | | Bucked and Split | | |
|---|---|---|---|---|---|---|---|---|---|
| | Quantity thousands | Value | Average Value per 1,000 | Quantity thousands | Value | Average Value per 1,000 | Quantity thousands | Value | Average Value per 1,000 |
| Elm (1) | 5,490 | 63,132 | 11 48 | | | | | | |
| Oak | 1,628 | 57,715 | 35 45 | 132 | 9,665 | 73 14 | 545 | 47,351 | 86 86 |
| Spruce | 560 | 5,363 | 9 61 | | | | | | |
| Douglas Fir | 356 | 6,147 | 17 27 | | | | | | |
| Basswood | 217 | 3,476 | 16 02 | | | | | | |
| Ash | 74 | 1,329 | 17 91 | | | | | | |
| Cedar | 60 | 5,000 | 83 33 | | | | | | |
| Total | 8,394 | 142,198 | 16 94 | 132 | 9,665 | 73 14 | 545 | 47,351 | 86 88 |

Table I.—Tight Cooperage, 1909—Total Quantity, Total Value and Average Value, by Species and Classes, of the tight staves manufactured in Canada, 1909.

(1) From both imported and domestic logs.

The striking point in Table I. is that the tight cooperage manufactured in Canada is, both as regards the class of product and the species of wood used, not high grade. Only 1.5 per cent. of the tight staves manufactured in Canada are ale and beer stock, a class of goods requiring straight grained white oak free from knots. Such oak is not now to be had in Canada; consequently, the large quantity of ale and beer stock used in Canada is imported from the United States. Similarly, the other class of staves requiring a high grade of oak timber, the "bucked and split," constitutes only 6 per cent. of the total. The great bulk of the tight staves manufactured in Canada are sawed; in 1909, out of a total of 9,071,000 tight staves, 8,394,000, or 92.5 per cent., were sawed. The relative quality of the different classes of staves is shown by a comparison of the average price per thousand; in 1909 sawed staves were $16.94, ale and beer staves were $73.14 and bucked and split staves were $86.88.

The great preponderance of the sawed tight staves and their low average price as compared with the other classes is explained by a study of the species used. It has already been explained that oak, and chieuy white oak, is the only timber suitable for the manufacture of ale and beer and bucked and split staves, that there is practically no oak in Canada, and that consequently these classes of staves are imported from the United States. On the other hand, Table I. shows that eight species of wood were in 1909 used in Canada for the manufacture of sawed tight staves. The two chief woods are elm and oak, which constitute respectively 63.5 per cent. and 19.4 per cent. of the total quantity of sawed staves; the other woods, with the percentage they represent, are: Spruce, 6.6 per cent.; Douglas fir, 4.2 per cent.; basswood, 2.6 per cent.; ash, 10.9 per cent.; and cedar, 10.8 per cent.

Though sawed oak barrels are used almost exclusively for the handling of alcoholic liquors and oils, trades which require by far the greater part of the tight cooperage used in Canada, oak, including imported oak, stands second on the list of tight cooperage woods, and represents less than one-fifth of the total. Nearly four-fifths of the tight staves used in Canada are imported in a manufactured state; the remaining one-fifth is manufactured in Canada from white and red oak, most of which is imported, part of which is picked up from farmers' wood lots, chiefly in southern Ontario.

The tight cooperage plants turning out high grade material are not situated in certain forest districts in Canada where raw material abounds, as is the case in the United States, but are managed by or closely allied to the large breweries, distilleries and refineries of Canada import their barrels or staves already manufactured or import the logs and manufacture them; many of the tight cooperage plants in Canada using oak and supplying the high class trade only assembling and repair shops; others are factories dependent upon foreign logs; a very few quite small manufacturers still manage to secure enough oak timber to supply them. Owing to the disappearance of native oak timber the number of the latter is decreasing.

The tight cooperage manufacturing industry in Canada, not having any native supplies of a perfect tight cooperage wood at its disposal, is chiefly concerned with supplying barrels for the shipment of rougher commodities, such as fish, pork and other packing house products, syrup, molasses and glucose. For the handling of these materials, which are not so easily tainted as alcohols and which are not so penetrating as alcohol or oils, tightly jointed barrels of elm, spruce, Douglas fir, basswood and ash are suitable.

Though these woods are used somewhat indiscriminately for the different uses to which low grade tight cooperage is put in Canada, there ars special uses in

which certain woods have come to be used to a greater extent than others. On the Atlantic coast large quantities of Douglas fir are used in the manufacture of fish barrels and salmon tierces. Douglas fir is manufactured into tallow casks and exported to Australia. Elm contributes to all classes of cheap tight cooperage, but, with basswood, is used especially for syrup barrels. Ash goes chiefly to the packing house trade.

Breweries report the use of Douglas fir and cedar for vats and tanks. The high average price of the cedar staves manufactured, $83.33 per thousand, would indicate that they were for such tanks.

The quantity and value of the tight heading manufactured is given in Table II.

| Class | Quantity — (Sets) | Value. | Average Value — (per Set) |
|---|---|---|---|
| Sawed..... | 413,764 | 42,356 | 10 |
| Ale and beer (1) ... | 11,250 | 5,556 | 49 |
| Total | 425,014 | 47,912 | 11 |

Table II.—Tight Cooperage, 1909—Total Quantity, Total Value and Average Value, by classes, of the Tight deading manufactured in Canada, 1909.

**(1) This heading is all White Oak, chiefly from imported logs.**

**Table II.**

Here it is shown that sawed heading predominates just as do sawed staves; 97.4 per cent. of the heading manufactured in Canada is sawed, 2.6 per cent. is als and beer. Oak alone is used for the ale and beer heading, and the price, 49 cents per set, is consequently nearly five times as great as the sawed heading, for which elm, spruce, Douglas fir, basswood and ash are used.

The annual manufactures of tight cooperage in the United States are 38 times greater and 58 times more valuable than those of Canada. The United States exports high grade tight cooperage. Canada imports it. The United States owes its control of the tight cooperage on this continent to its large hardwood forests; so superior in this respect is the position of the United States that while, even including imported logs, oak constitutes only 55.5 per cent. of Canada's small tight cooperage output, it furnishes 87.2 per cent. of the tight staves manufactured in the United States.

## Slack Cooperage

As there is a greater demand in Canada for slack cooperage than for tight cooperage, and as Canadian woods are better adapted for slack than tight cooperage, the manufacturing of slack cooperage stock is by far the greater part of the Canadian cooperage industry. There were manufactured in Canada during 1909 103,982,000 slack staves, valued at $809,649; 8,310,000 sets of slack heading, valued at $432,343; and 35,771,000 hoops, valued at $353,127; a total of $1,595,110 for the slack cooperage industry.

Details are given in Table III. of the quantity and value of the different species of wood used for staves, heading and hoops.

Table III.—Slack Cooperage, 1909.—Total Quantity, Total and Average Value of the Staves, Heading and Hoope manufactured in Canada, 1909, by species.

**Table III.**

Ten species of wood were used in the manufacture of slack staves in 1909. Two species, elm and spruce, furnished over four-fifths of the total; 64 per cent. of the staves were elm and 16.5 were spruce. Poplar furnished 6.1 per cent. of the staves manufactured, and the other species used—maple, birch, beech, basswood, ash, cottonwood and balsam—furnished each less than 5 per cent. of the total.

Excluding cottonwood, of which a comparatively small quantity manufactured in British Columbia brought the high price of $15.83 per thousand, basswood and elm staves at $10.83 and $8.46 per thousand were the most valuable. Staves of other species varied in price from $7.28 to $5.80 per thousand, with spruce and balsam the cheapest at about $5.80. One reason for the low price of spruce is that it is the wood chiefly used for nail kegs and the roughest class of cooperage. The higher price of basswood and elm and poplar is due to the superior qualities of the cooperage manufactured from these woods and to their general use in the higher class of cooperage used for uour and sugar barrels.

The decrease in the quantity of basswood and the extension of the slack cooperage industry into districts where basswood is not to be found, but where poplar is abundant, has given poplar first place in the manufacture of heading. Poplar is good heading material and is destined to replace basswood for this purpose in Canada. It is now used largely for flour barrels. Nearly one-third of the heading manufactured in 1909 was poplar; poplar and elm together furnished over one-half; about one-fifth was basswood and one-fifth spruce. The percentage manufactured of each of the leading species used was: Poplar, 30.9 per cent.; elm, 27.7 per cent.; basswood, 21.2 per cent.; spruce, 19.1 per cent.

Of the four species furnishing the bulk of the heading, spruce and elm bring the lowest prices at $30.68 and $42.65 per thousand sets, while basswood and poplar sell to the best advantage at $57.43 and $70 per thousand sets.

Though metal anad wire hoops are being increasingly used with slack cooperage, wooden hoops are

| Kind of Wood. | Staves. | | | Heading | | | Hoops. | | |
|---|---|---|---|---|---|---|---|---|---|
| | Quantity — thousands | Value | Average Value per 1,000 | Quantity — thousands | Value | Average Value per 1000 | Quantity — thousands | Value. | Average Value per 1,000 |
| Elm ... | 66,586 | 563,198 | 8 46 | 2,297 | 97 983 | 42 65 | 29,327 | 294,221 | 10 03 |
| Spruce ... | 17,105 | 99,566 | 5 82 | 1,590 | 48,786 | 30 68 | 1,360 | 8,078 | 5 94 |
| Poplar .... | 6,350 | 46,210 | 7 28 | 2,584 | 197,760 | 70 00 | ... | ... | ... |
| Maple..... | 4,886 | 29,788 | 6 01 | 100 | 5,000 | 50 00 | 1,500 | 15,000 | 10 00 |
| Birch and beech .. | 4,860 | 29,194 | 6 00 | 8 | 480 | 60 00 | 1,749 | 17,490 | 10 00 |
| Basswood.. | 1,690 | 17,482 | 10 83 | 1,747 | 100,334 | 57 43 | 1,835 | 18,335 | 9 99 |
| Ash ..... | 1,584 | 10,401 | 6 57 | ... | ... | ... | ... | ... | ... |
| Cottonwood | 810 | 12,830 | 15 84 | ... | ... | ... | ... | ... | ... |
| Balsam .... | 200 | 1,160 | 5 80 | ... | ... | ... | ... | ... | ... |
| Total. | 103,982 | 809,649 | 7 78 | 8,310 | 432,343 | 52 03 | 35,771 | 353,127 | 9 87 |

still turned out in a quantity proportionate to the staves and headings manufactured. Elm is the chief wood used for hoops in Canada; there were 29,327,000 elm hoops manufactured in 1909; this was 81.9 per cent. of the entire output; the other species used—basswood, birch and beech, maple and spruce—divided almost equally the remaining 18.1 per cent.

Hoops of all species, excepting spruce, sold for about $10 per thousand; spruce hoops averaged only $5.95 per thousand, the price being kept down both by the poor quality of the material used for this purpose and by the use of spruce for nail kegs.

Three classes of manufacturers produce the slack cooperage of Canada. The smallest and most numerous are the individual coopers, chiefly located in the

apple regions of Ontario, Quebec and Nova Scotia, who cater only to the local demand. Frequently these men carry on a cooperage business in connection with a small sawmill. Another class of slack cooperage manufacturers comprises the large shippers, chiefly of flour, who maintain private cooperage plants. The third class, manufacturing the greater part of the slack cooperage used in Canada, comprises the large cooperage factories. These factories are located with reference both to the supply of hardwood timber and to the market for barrels, and are nearly all situated in the hardwood regions of the eastern provinces, chiefly Ontario. Reports from these factories indicate that they are finding it increasingly difficult to find timber; that those which do not close down permanently are forced to move to new locations to secure raw material. As the farmers' wood lots become exhausted, the general trend of the slack cooperage industry is to move father north, where large supplies of poplar, spruce, maple and birch may be found.

Most of the slack barrels used in Canada are of domestic manufacture. The chief imports are of hoops, together with small quantities of gum and sycamore for flour barrel staves.

[1]Some imported red gum is now used for barrels containing heavy oils.

[2]There were imported into Canada in 1909, 101,818 tight barrels, valued at $117,667, and 4,919,000 oak staves and heading, valued at $174,346—a total tight cooperage import worth $292,013.

Considered on a per capita basis, the annual slack cooperage output of Canada is greater and more valuable than that of the United States; the United States prices per thousand were, for 1910: Staves, $5.72; heading, $45.71; hoops, $6.91. The prices in Canada during 1909 were: staves, $7.78; heading, $52.03; hoops, $9.87. Nineteen woods are used for staves in the United States; five of these—red gum, pine, elm, beech and maple—furnish each more staves annually than are cut in the whole of Canada. Though pine is the second most important slack cooperage wood in the United States, it was not reported for 1909 by any Canadian cooperage firm.

Slack cooperage can profitably be manufactured from sawmill waste, and it would be a great saving of timber if this practice became general. This method of utilizing all the timber and reducing the cost is finding favor in the United States. There are yet but few signs of it in Canada.

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### Boxes and Barrels in Newfoundland

Announcement that arrangements have been concluded with a large United States packing concern to establish and operate five cold storage plants in Newfoundland for fish and fish products has been made.

The company proposes to erect these plants at its own expense within the next five years. Each plant will cost $100,000 or more and one a year is to be built and started, the whole to be operated for fifteen years. The company proposes to erect within the same period five smokehouses, five fish packing factories, two glue factories and two guano factories, whereby they will be able to utilize the by-products of the main industry. A packing house and smokehouse are tobe erected each year and glue and guano factories every two years.

Provision has also been made for a floating plant instead of a station on land, which can be moved around the coast from place to place and thus avail of the fishery possibilities of the northern section of the coast, which is icebound for part of the year, and this also provides against a possible shortage of fish in any vicinity.

An option has already been secured on the whaling plant at Lark Harbor, Bay of Islands, where the company will erect its first establishment. This plant was constructed several years ago at an outlay of $40,000 and as an immense herring trade is done in the vicinity the outlook is most promising.

The company asks for free entry of machinery and equipment and for grants of free crown lands for factories, timber areas for box and barrel making, and water power for operating and lighting. The colony is to be asked to guarantee 1½ per cent. interest annually on the buildings and plant, up to $500,000, and to make up any shortage in a 5 per cent. dividend on the operations of the concern.

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### Industrial Education

With the prorogation of the Ontario Legislature, an important act "respecting Education for Industrial Technical School Purposes" went into force in that province. The Act provides for a considerable enlargement of the facilities offered for industrial training, under the supervision of the Provincial Department of Education, and is largely the outcome of a special report on technical education by the Superintendent of Education for the Province, Dr. John Seath.*

The Act is divided into two parts, the first of which has reference to industrial, technical and art schools, and the second, to agricultural and commercial departments of schools.

### Industrial, Technical and Art Schools

The Act sets forth that, with the approval of the Minister of Education, a high school board or board of education of any city, town or village, may provide for the instruction of duly admitted pupils in the following classes of schools:

(1) General Industrial Schools for instruction in such subjects as may form a basal preparation for the trades, including work-shop practice, with correlated drawing, English, and practical mathematics and science, and continuing the essential subjects of a good general education.

(2) Special Industrial Schools, providing for instruction in the theoretical and practical work of particular trades carried on in the city, town or village, and when deemed desirable in the essential subjects of a good general education.

(3) Technical High Schools and departments of High Schools for the training of duly admitted High School pupils for minor directive positions in industrial establishments.

(4) Co-operative Industrial Schools in which and under such conditions as may be agreed upon between the Board and the employer; (a) apprentices, whether articled or not, employed in the workshops may receive in the day schools instruction bearing upon their trades; and (b) pupils attending the day schools may receive practical instruction in the workshops. P

(5) Schools for instruction in the Fine and Applied Arts.

(6) Industrial, Technical and Art Evening Schools, in which workmen and workwomen employed during the day may receive theoretical instruction in their trades.

Pupils may be admitted to a special or a general or a corporative industrial school from the fourth form of the public or the separate school.

### J. A. Fay & Egan Company's New No. 225 Triple Drum Sander

We are pleased to illustrate herewith J. A. Fay & Egan Company's new No. 225 triple drum sander and mention a few exclusive points contained in this machine which enable it to turn out such perfect work that hand labor and rubbing are entirely eliminated, at the same time saves many hours time and labor in changing paper, making adjustments, etc.

It is the only sander in three pieces so that in case of accident to the drums, or for recovering, it requires less than two minutes to elevate the entire upper works high enough to remove the drums, if necessary. You do not have to remove the bed plates or disturb the regular setting of the feed and pressure rolls. On any other make of sander it would take from five to ten hours to dismantle the machine and put it together again, with the consequent loss of the use of the machine for that time.

Each size of the No. 225 weighs 3,000 lbs. more than the same size of any other make in the market. It is consequently a more solid and better built machine all around and will do finer work.

The drums are made of hydraulic steel pipe. The shell being in one piece turnedinside and outside, is perfectly balanced and non-breakable; other makes being of cast-iron, uneven or the inside made in sections and in forcing to position invariably spring the shaft, which is bound to show up sooner or later, as it is impossible for this kind of drum to keep a perfect balance.

The paper is held absolutely tight on the drums by our automatic take-up device. This is the only take up device which does not put the drum out of balance when it begins to take up the stretch in the paper. It is suspended entirely on the shaft and does not depend upon spring pressures exerted against the shell of the drum as in other makes.

The patented covering furnished with the manufacturer's drums is absolutely non-stretchable, firm enough to insure perfectly sharp edges and yet allow of a velvet finish.

In working quartered oak and other woods of this description having hard and soft spots, the finish will be perfectly even, while other sanders dig out between the flakes.

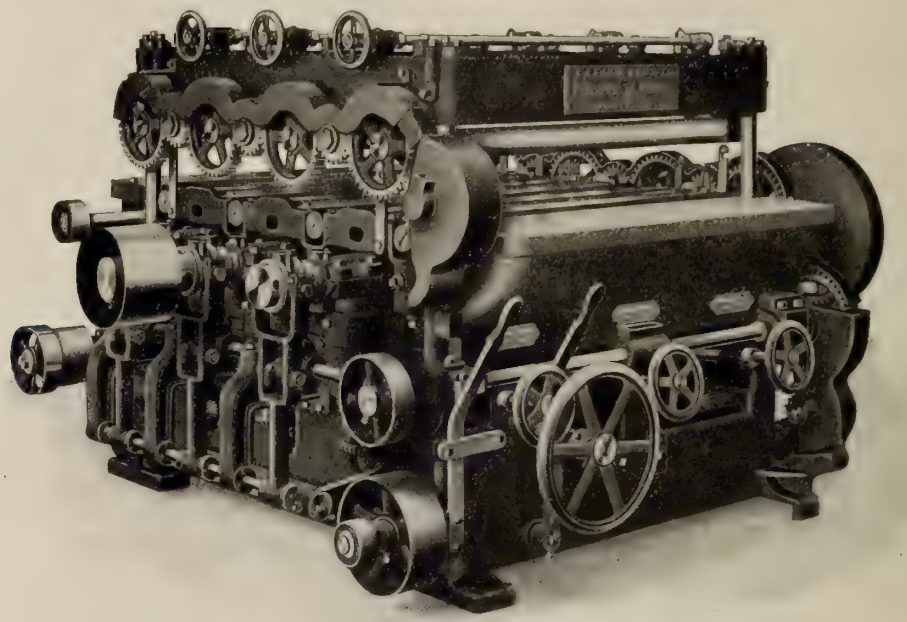
Due to the qualities of the manufacturer's covering (the surface being absolutely true) the sanding paper is used evenly all over, thus making it last twice as long as on other sanders where the covering is a cheap quality of felt, either wired or glued on to the shell.

All the mechanism of the entire machine is exposed and easily accessible, saving an operator many hours a week by being able to watch and prevent cutting in the screws and nuts, thus preventing wear and insuring even pressure and good work all the time.

New sandpaper can be placed on all three drums in from five to seven minutes, while on other makes of machines best time ranges from 17 to 30 minutes.

With the manufacturer's oscillating mechanism it is practically impossible to produce the markings so commonly found on the work of other sanders, generally termed waves and planer marks.

All working adjustments are immediately in front of operator and he does not have to leave his position to make such changes as are necessary.



New No. 225 Triple Drum Sander.

The four corner screws are mounted on ball bearings, insuring easy movement for upper works and long life and quick adjustments.

.The manufacturer's feed and pressure rolls are all made of seamless steel tubing being non-breakable, and take a smoother finish than cast iron, thus turning out better finished material.

All bearings have reservoir self-oiling features.

For further particulars concerning this machine, you are invited by the manufacturers, J. A. Fay & Egan Company, 153-173 W. Front street, Cincinnati, Ohio, to write for Sander catalogue.

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McKenzie's saw mill and Clark's machine shop, of Morrisburg, Ont., were totally destroyed by fire this month. The buildings situated on the water front were old wooden structures and fell an easy prey to the flames.

The fire started in the saw mill, which, with the machine shop, were quickly consumed. Great difficulty was experienced in confining the flames.

# From Coast to Coast

### New Incorporations

Showcases and Fixtures, Limited, Toronto, have re-incorporated with a capital of $140,000.

The Owen Sound Furniture Company, Limited, have incorporated under Ontario provincial laws with a capital of $200,000, to manufacture furniture. Head office, Owen Sound. She following are interested: Robert Coryell, furniture dealer; and Gordon Henderson, Charles Montgomery, John McCuaig and Dudley Bissell, furniture department manufacturers, all of Toronto.

The Suburban Construction Company, Limited, head office Toronto, have received an Ontario charter of incorporation to carry on a lumbering business. Capital, $100,000.

The Kent County Development Company, Limited, Toronto, have been incorporated under Ontario laws to carry on a saw milling business. Capital, $50,000.

The Chambers Lumber Company, Limited, have received an Ontario charter and will carry on a lumbering and woodworking business. Capital, $50,000.

The following companies have been incorporated in British Columbia recently:—

The Campbell Lumber Company, Limited, Kitchener, $100,000 capital. They will take over the business now carried on by the Kitchener Lumber Company, Limited.

Snowdon-Bidlake Logging Company, Limited. Capital $50,000. The head office of the company is at Vancouver. This company is chartered to carry on a general lumbering business and manufacture shingles, sash and doors.

Reed Roller Block Company, Limited. Capital $10,000. Head office at Vancouver. They will manufacture patent pulley blocks.

Fort George Trading and Lumber Company, Limited, capital $200,000. Head office at Vancouver. To carry on a general sawmill and lumber business.

A. G. Lambert Company, Limited, capital $150,000. Head office at Nelson. To take over the sawmilling and lumber business, plant, timber areas, etc. of A. G. Lambert & Company, of Nelson.

The Mackay Woodworking Company, Limited, with a capital of $60,000. Head office at Vancouver. To take over the business of The Mackay Woodworking Company, and to carry on the manufacture of sashes, doors, mouldings, bank, bar, and office furniture, mission and other furniture.

Columbia Mutual Lumber Company, Limited, capital $1,500,000. Head office at Victoria. To take over from the Columbia River Timber and Transportation Company, Limited, fifty-two special timber licenses. and to acquire from the Pioneer Lumber Company, Limited, a vendor's lien and royalty contract upon said fifty-two special timber licenses; to take over from the Canadian Lumber Company, Limited, seven special timber licenses, and to carry on business as timber merchants, and operate sawmills and shingle-mills.

The Yahk Lumber Company, Limited, has received a British Columbia Charter. Capital $50,000. Head office at Yahk, East Kootenay, B.C.

The Princeton Lumber Company, Limited. Head office, Princeton, B.C., capital $50,000. They will take over the business carried on by Wm. C. McDougall.

Geo. C. Salt Lumber Company, Limited. Capital $50,000. Head office Vancouver.

The Mount Lehman Lumber, Timber & Trading Company, Limited, &30,000. Head office, Mount Lehman.

The Canadian Puget Sound Lumber Company, Limited; capital $5,000,000. Head office, 1114 Langley street, Victoria. To acquire and take over the property of the Michigan Pacific Lumber Company, the Michigan Puget Sound Lumber Company, and E. B. Caldwell & Company.

Columbia River Lumber Company, Limited. Head office, Toronto, street, Toronto, Ont. Capital, $5,500,000.

### Massey-Harris Begins Erecting New Storage Building

Mr. Thomas A. Findley, the assistant general manager of - the Massey-Harris Company, who was in Brantford recently, states that the company will begin immediately the erection of a new storage building here, 60 x 180 feet and three storeys high. This does not look as if any curtailment of operations in the Brantford plant was contemplated.

### Drive Completed

The drift drive of the St. John River Log Driving Company, Fredericton, N.B., which started up river from St. John about a fortnight ago, got through and returned home. Quite a crew of men were on the expedition which was in charge of Mr. Murray Glasier with the tugs Helen Glasier and Fred Glasier. They did not encounter any unusual number of logs and had easy conditions to do their work.

### Mill Starts at Oromocto, N.B.

The St. John River Valley Milling Company's mill at Oromocto has started sawing with its full force of men, and with a good outlook for the season. The company got out five million feet of lumber during the past winter, and they have met with great success on their drives on this side of the St. John river. Their cut on Swan Creek, on the Rockwell, on the Gornish and on Sand Brook has been all got out, and they are waiting to hear favorable reports from their drive on Little River.

Fort William, Ont.—The lack of rain is having a depressing effect on the lumbermen who say that the water is the lowest for years, anad unless the streams

and rivers rise some there will be no logs to cut as they cannot be floated.

Dr. Crawford, of Vancouver, has spent a few days at Vernon looking into conditions with a view to making some investment; he is general manager of the British American Mills & Timber Company, and as a consequence was interested in milling timber possibilities.

### Big Mill Resumes

The Pigeon River Lumber Company, of Port Arthur, resumed operations with 250 men and a cut of 35,000,000 feet ahead sufficient to keep it in operation to next December. It has been idle since last September.

### Saw Mill Burned at Haliburton

On the 18th ulto. fire broke out in Austin Bros. saw mill at Haliburton, and in a remarkably short space of time, the structure was reduced to ashes.

Owing to the dry weather prevailing in the north country, the fire had no trouble in licking up the mill. The building and contents were insured.

Austin Bros. mill was experiencing busy conditions, and was employing quite a staff of men, who will be out of employment.

### Fire Follows Them

Fire caused $70,000 loss to six firms on Colborne street, Point St. Charles, Montreal. The Canada Furniture Company and the Ives Modern Bedstead Company had just moved into the new premises after a fire several months ago.

### Big Lot of Lumber Burned

Lindsay, Ont.—A somewhat serious fire, with a loss of about $8,000, occurred at the Baker Lumber Company's yard, in the East Ward, by which over a quarter of a million feet of beech and hemlock lumber and half a million shingles were destroyed. A G.T.R. car filled with shingles was also destroyed. The fire, which is supposed to have started from a spark from a passing steamer, proved a stubborn one to fight.

### Furniture Proposition

A meeting will be held in the City Hall, Guelph, to finally decide on the proposed co-operative furniture factory. The subscription list will be completed if possible, or the scheme allowed to drop.

### Forest Fires

Fort Frances, Ont.—Owing to the extremely dry weather, the forest fires have started again, and unless rain sets in soon will be serious to the standing timber as well as to the lumbermen and loggers who have timber cut and ready for the drive. On the Duluth branch of the Canadian Northern between Ericksburg and Virginia, the fires have been raging with disastrous effects. The village of Ray was within an ace of being wiped out on Saturday, while Bush, a little farther south, was completely burned. Fires are also raging south of International Falls and along the Minnesota border, which threaten to be a repetition of those last fall. At Hannaford, a settler who was burned out last fall, was burned out again the end of the week, and with a strong wind blowing, the fire will sweep along the river.

No great damage was done on the Canadian side, although fires are reported at Frog Creek, north of here. Timber cruisers who have returned from the Quitico forest reserve, Hunter's Island, say fires are again breaking out there, and unless rains come soon, great damage will be done to the big timber, which is held by the government as a protection to the game reserve.

### Vancouver, B.C.

Coroner Jeffs has decided that it will be unnecessary to hold an inquest on the body of the logger Ebenezer Burch, who was killed by a log at Heap's camp, Jervis Inlet, on May 1. Deceased lies at the undertaking parlors of Messrs. Greene & Merkley, where the remains await instructions from relatives in Ohio.

The fatal accident was caused by the heavy end of a log, which he and a fellow logger had sawn through, falling upon and crushing him to death. The log was fixed on the side of the hill and Burch was on the lower side. The heavy end was without sufficient support and when severed it rolled over, carrying Burch down the hill with it.

### Calgary Seeks Factories

Calgary, Alta.—As a result of the appointment of a new secretary of the board of trade and industrial commissioner, the city is arranging to purchase several industrial sites which will be offered to manufacturers at the lowest prices.

### Mill's Record Cut

During the month of April mills of the Western Canada Lumber Company at Fraser Mills, B.C., cut 10,073,613 feet of lumber. The greater portion of this was shipped to the prairie provinces.

### Fire in Timber Limits

Report from Sharbot Lake states that quite a serious fire has been raging for a couple of days, in the timber limits about four miles from there at the head of the lake, and owned by M. Avery, ex-M.P. The people of the neighborhood turned in and prevented some surrounding buildings from being burned, but it is stated that the loss to the timber limits will be great.

### Branch Mills in Berlin

Berlin, Ont.—A representative of a large Cincinnati lumber firm is negotiating with Berlin for establishing of branch mills and lumber yards here. The firm handles southern hardwoods very extensively, and this being a furniture manufacturing centre makes it a favorable location for their Canadian business.

The International Lumber Company, of Swift Current, Sask., was damaged by fire to the extent of $10,000.

Low water at Merrickville has caused mills to work on short time.

While working about a saw mill near Owen Sound, five men were injured and one killed by lightning.

### Vast Timber Tract Sold

The largest tract of standing white pine timber in the State of Michigan was acquired recently by a trio of Canadian capitalists—W. D. Lummis, of Toronto; Henry J. Bartlett, of Orillia, and George Gordon, M.P., of Sturgeon Falls. The transaction, which was a cash one, involved over a million dollars.

The property is situated at Sheldrake, Michigan, and was the property of the famous Calumet and Hecla Copper Mining Company. They decided that the timber was of too high a quality to use for mining purposes, in which way they have been using some thirty million feet per year. Therefore they looked about for a purchaser.

The three Canadian lumbermen saw the opportunity, and, at a moment's notice, came through with the ready money. The deal involves the biggest sale of white pine timber that has been effected in Michigan for many years.

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The W. A. Kribs' planing mill at Hespeler, Ont., was never as busy as at the present time, in the history of its existence.

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The Victoria, B.C., Colonist estimates that there are in operation in that province upwards of 275 lumber and shingle mills.

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A large lumber merger is under way at Cranbrook, B.C. English capitalists, it is understood, are arranging to acquire the East Kootenay Lumber Company, the Baker Lumber Company, the King Lumber Company, the Standard Lumber Company, the Rock Creek Lumber Company, and other concerns, with headquarters at or near Cranbrook. It is said that the interests seeking to acquire these lumber companies have a working capital of $20,000,000, and if the deal is put through they purpose establishing a couple of hundred retail yards on the prairies.

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### A Large Wagon Works Being Built in Port Arthur

Actual construction was commenced this morning on the proposed big wagon works in Port Arthur.

The contract for the plant was let to Stewart & Hewitson, and it will cost $250,000. A superintendent and large force of men are on the job. The company is under agreement with the city to turn out wagons by October 1. It is the intention to have the factory completed September 1. In the neighborhood of 150 men will be employed.

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### Lumbermen in Council

Resolutions protesting against any reductions in the lumber tariff, against the proposed reciprocity agreement with Canada, and favoring a ship subsidy, were adopted by the National Lumber Manufacturers' association at Chicago recently. The following officers were elected: President: Everett G. Briggs, Tacoma, Wash; Secretary, George K. Smith, St. Louis, Mo.; Former President, Edward Hines was made a member of the board of governors.

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### Valuable Mill Burned

Amherst, N. S., May 16.—The valuable mill owned by the Rhodes Curry Co., at Little Forks, was totally destroyed by fire to-day. The mill hands could do nothing to save the proporty. The mill was equipped with the most modern machinery. The loss will be $25,000. From fifty to seventy-five menn were employed in and about the mill. The output last season was over two million feet.

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### Fredericton, N.B.

#### The Conditions on the Upper St. John

Mr. Elwood Burtt's drive on the Keswick, containing four and one-half million feet of lumber, has reached his mill at Burtt's Corner.

Mr. John S. Scott's drive on the Yoho is also out, but word has been received that Hon. J. K. Flemming's drive on Burnt Brook, Carleton County, is having a hard time, along with other drives there.

The Messrs. Aitken, who have the contract for the Corporation drive, will start work the first of next week and have purchased from Hr. J. S. Scott the outfit which he used last year in the work.

Notwithstanding the reports from upriver that the water is falling, it is still considered at a good pitch for driving and some rain, which is bound to come, should bring the logs along all right.

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#### Seventeen Millions in Booms

It is reported that a large number of new logs belonging to Messrs. Randolph & Baker and the Hilyard concern are coming down river to Fredericton, N.B.

Word received this morning from Mr. Roy Morrison, who is at the headwaters of the St. John, is to the effect that the river conditions are favorable for driving and everything is coming along all right, and if conditions are no worse than at present, every drive will come.

It is estimated that there are seventeen million feet of logs in the booms.

The upriver weather and water reports are as follows:—

Edmundston, N.B.—River falling slowly; weather foggy and bright by turns; very warm and dry.

Van Buren, Me.—River fell eleven inches last night; logs coming fine; weather fair.

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### Forest Fires at Kings County

A fire started in the woods near Newton, about eight miles from Sussex, N.B., and soon attained the dimensions of a conflagration. Great sheets of flame and rolling clouds of smoke flying before the high wind were visible from here, and after dark the reflection of the fire made a terrible spectacle.

During the evening a report was circulated that Moore's lumber mill at Newton was on fire, and that the whole village was threatened by the flames. Efforts to communicate with Newton by telephone only increased the alarm felt at the possibility of the village being wiped out, and a hundred or so families being rendered homeless. All the men were away fighting the fire, anad the women were too busy watching the progress of the flames to answer the telephone calls.

At a late hour it was learned that there was no foundation for the report that Mr. Moore's mill had caught fire or that the village was in danger. The fire, however, did a great deal of damage. It swept through about 200 acres of valuable timber land owned by Joseph Campbell, and also the Allan and Oldfield's woodlands.

Owing to the high wind the fire swept through the timber at great speed, and at one time it was feared

the whole countryside would be devastated, but at midnight it was reported the fire was under control.

### Forest Fires in Nova Scotia

Shelburne, N.S.—Forest fires have been doing much damage in the vicinity of Shelburne. One big fire at the north of the town has burned thousands of dollars' worth of timber land, and several dwellings have had narrow escapes. Another fire on the western side of the harbor was more destructive. It not only burned valuable timber, but worked into the villages of Gunning Cove and Churchover, the former nine miles from town and the latter seven. The latest reports state that thirteen buildings have been destroyed, including the rectory, occupied by Rev. S. G. Andrews, with all contents, the residence of Fred Sullivan, Francis Downey and the public hall. Crowds of men from Shelburne and other places have lent valuable assistance in fighting the flames.

A gasoline boat from Shelburne which was at the scene, sunk on the way home and John Hethrington and Frank Robertson of Shelburne had a narrow escape from drowning.

### Fires in Montreal

Montreal had 1,150 fires this year, an increase of 300 over last year.

### Fire at Hallville

The sawmill and cheese box factory of Shaw & Earle, at Hallville, were destroyed by fire.

### Lost Logs

During the past few days, several million feet of logs have been abandoned on the Miramichi River, N.B. The rains did not prove as helpful as was thought, and many operators were forced to temporarily leave their drives. The largest tie-up is that of the D. & J. Ritchie Company, on the Sevogle. None of the Upper Miramichi drives are as yet in safe waters.

### Drive on Its Way

A large drive of sawlogs belonging to the Baker Lumber Company, Lindsay, Ont., is now running at Gelert on the Burnt River, and will be down to Cameron Lake in a few days.

### Much Timber Already Lost in Sections of New Brunswick

St. John, N.B.—Reports from provincial centres show the forest fire situation in New Brunswick to be alarming, particularly in King's and ork Counties. In the former a tract of lumber land five miles by eight is burned over, and in York every available man of the Government Crown Lands Department is out fighting fires.

Deputy Crown Lands Commissioner Loggie said to-day that if there is much wind, and unless rain comes, thousands of acres of valuable lumber would likely be wiped out.

### Auto Factory for Palmerston

Palmerston, Ont.—This town voted Monday on a by-law to raise $10,000 to buy and remodel the old carriage factory building, for use as an automobile factory. There were six adverse votes in a total of 352, leaving about 90 over the three-fifths required to carry the by-law.

### Big Lumber Company

Montreal, Que.—A special cable received here says one of the biggest Canadian lumber companies so far floated is about to offer shares in London. It is called the British Canadian Lumber Corporation, with a capital of $20,000,000, and will offer $4,000,000 6 per cent. cumulative participating preference shares at par, the allottees to be entitled to receive one ordinary share of $100 in respect of every ten preference shares. The preference shares will participate rateably with the ordinary shares in all dividends after 6 per cent. has been paid on the ordinary.

### Planning Big Run for Big Saw Mill

Fort William, Ont.—With orders to cut thirty-five million feet of timber before it ceases operations next winter, the Pigeon River mills in Port Arthur opened this morning. Two hundred and fifty men are engaged now, and it is possible that the force will be slightly increased.

Manager Chamberlain said to-day considerably more lumber would be sawed at the plant this season than last. Last year the mill closed down in September. This year it is planned to continue operations until Christmas.

### Enlarging Plant

The Massey-Harris Company, Toronto, will enlarge their plant and increase their staff by 500 men.

### The Bain Company Will Extend

The Bain Wagon Company, which is probably Woodstock's largest industry, will extend its building and plant. Plans are now being drawn for these extensions which will consist of a building four storeys high, 125 feet long and 50 feet wide, the addition to be built to the north of the present factory. When this building is completed it will mean an increase of from 50 to 75 hands, which with the number on the payroll at the present time will make a total in the neighborhood of 400 hands. This is the largest in the history of the institution. During the coming summer the company will also erect a large warehouse in Western Canada, either in Winnipeg or Calgary, to facilitate the supplying of orders for the territory west of the Great Lakes. Heretofore all these shipments have been made direct from Woodstock.

### Had a Bad Fall

While walking in the yard in the Kingston Shipbuilding Company, in company with other directors of this firm, W. J. Fair was unfortunate enough to receive a bad fall. He stepped on a log which rolled, with the result that he fell on his back across it. The fall gave him quite a jar, bruising his side considerably. He went right home afterwards, and went to bed, where he will be confined for a few days.

### Windsor, Ont.

The past month has been a very busy one for all branches of labor, and factory employes and the building trades have been well employed. There were sixty-nine permits issued during the first three months of the year, valued at $113,625, as compared

with thirty permits for the first three months of last year, with a value og $37,975. There was a great demand for houses, and the planing mills and lumber yards were rushed with orders.

### Orangeville Suffers from a Big Blaze

Orangeville, Ont., June.—This town was visited by a disastrous conflagration early this morning when the fine three-storey brick factory of the Hurndall Novelty Furniture Company was burned to the ground, at a loss of nearly $6,000. Only the dry kiln a one-storey addition, 25 x 50, escaped the flames.

The main factory was a three-storey building, 55 by 11, with a wing 45 by 55, also three storeys high, 28 by 30.

### Big Timber Deal

Revelstoke, B. C.—A deal has just been closed whereby an American syndicate, with whom is associated F. C. Adams, of Portland, Ore., and Charles A. Barnum, of this city, obtains control of at least 700,000 miles of timber and pulpwood areas in the interior, together with almost all the available lots and considerable land adjacent for the purposes of subdivision.

It is the intention of this syndicate to erect a large pulp and paper mill in the city, a large saw mill at Big Eddy, close to the city, and a power plant sufficient for the purposes of both concerns. For the erection of the pulp mill, George Hardy, an expert in New York, has been employed to prepare the plans and is already at work, while in the very near future a dam engineer will be brought from Montreal for the purpose of planning a dam across the Columbia river about three miles out of the city, which will supply the energy for driving all the machinery. Here the large dam will be constructed with a lock permitting steamers to pass through the river unmolested, and a spillway for logs. This will cost in the neighborhood of $1,250,000.

Two millions of dollars is the capital arranged for, but this will be increased later as the plans for the various enterprises progress to completion. It is conservatively estimated that the combined enterprises will employ hundreds of men.

D. N. Stevens Company, Limited, Winnipeg, have received a Manitoba charter with a capital of $100,000. They are chartered to carry on a business as coopers, box makers and do a general lumbering trade.

### Forest Fires Near Little Quebec

Forest fires are raging on the section of timber limit owned by the Guelph Patent Cask Company, situated in the vicinity of Little Quebec, about two miles from La Patrie village.

### Investigation Not Wanted by Employers

Vancouver, June 3.—There was little progress in Vancouver's labor dispute to-day. The Employers' association has replied to Hon. W. L. Mackenzie King, minister of labor, in the following terms in reply to his telegram offering to hold an investigation under the Industrial Disputes Investigation Act.

"We have to thank you for your kind offer, should serious strikes occur in Vancouver. Some time ago the carpenters demanded an increase and the Master Builders' Association made what they considered a reasonable offer, amounting to six per cent. advance, which is the highest wages paid in Canada and which was refused by the union. In the meantime the Master Builders' Association have secured all the men they require at the advanced rates and all work is progressing satisfactorily and the men employed are quite satisfied. The Master Builders' Association are not in need of your good offices at the present time. Any further strikes which may occur will be dealt with in due time and we shall be glad indeed in the event of serious trouble to avail ourselves of your kind offer. The communication you have received from the building trades council is an endeavor to enlist your sympathy and support for the closed shop principle, which has been thoroughly discussed by all the employers of labor in thic city, and after all consideration was decided would be detrimental to the best interests of the city of Vancouver at large.

"This is a matter of business policy which must be left to the individual employer to decide, and which from experience of other large cities will be in the best interests of Vancouver and the workmen themselves."

Since the above letter was written between three and four thousand men of the building trades quit work in what they technically describe as a "cessation from labor." All union carpenters are out. It is estimated that work has been stopped on two-thirds of the buildings, but many non-union carpenters are working.

It is claimed by the Master Builders' Association that they have all the men necessary to carry on this work. As to whether this is correct or not, we do not know.

### Algonquin Park Enlarged

The Ontario Government has carried out its intention, recently announced of enlarging the boundaries of Algonquin Park. Those portions of the recently purchased timber limits extending over the original boundary of the park have, by an order in Council, been formally added to the park. The territory has an area of 132½ sq. miles, in the townships of Lawrence, Nightingale and Airey, and is part of the 380 square miles under lease to the Munn Lumber Company, taken over recently by the Government at a cost of nearly $300,000. The southern boundary of the park, with the new additions, now presents a somewhat irregular appearance. This is due to the fact that many years ago, before the district was laid out in townships, the timber limits under license were laid out paralled to the Ottawa River, their lines running southwest. When the new surveys were made and fifteen or more townships set aside for a national park, the township lines did not conform to those of the timber limits.

### African Tree a Wonder

A remarkable tree has been discovered about the region of Lake Chad. Its power of increase in every way is remarkable. In a few months an extensive tract of land, we read, became an impenetrable forest. In one season from four to five meters; in other words, from 13 to over 16 feet.

# After the Whistle Blows

### A Warm Fly

'Arriet and 'Arry were out in the country, enjoying a beano. A bee lighted on the back of 'Arriet's hand. She looked at it, amazed.

"'Arry," she cried, "come and look at this funny fly."

Her call frightened the bee, which stung her.

"Crickey," she shouted, "aint it 'ot when 'e sits down!"

### The Weaker Sex

The young woman had spent a busy day.

She had browbeaten fourteen salespeople, bullyragged a floorwalker, argued victoriously with a milliner, laid down the law to a modiste, nipped in the bud a taxi chauffeur's attempt to overcharge her, made a street car conductor stop the car in the middle of a block for her, discharged her maid and engaged another, and otherwise refused to allow herself to be imposed upon.

Yet she did not smile that evening when a young man begged:

"Let me be your protector through life!"

### Caught !

"You are evidently very fond of books, sir," said an old gentleman to a young man in a tramcar. "May I ask you whom you consider the best novelist of the day?"

"Jenkins, undoubtedly," said the young man. "There's nobody can write like Jenkins. Why, sir, the circulating libraries can't supply his novels fast enough!"

At this moment another man entered the tramcar and addressed the young man.

"Halloa, Jenkins!" he said. "How are you today?"

### Sufficient

A motorist was stopped by a policeman, the light on the car being insufficient. He gave his card to the constable.

"G. J. Smith," read the man in blue. "Go on with you!" he exclaimed. "I want your proper name and address. We've too many Smiths about here. Now, look sharp!"

"Then," said the motorist, "if you must have it, it's William Shakespeare, Stratford-on-Avon!"

"Thank you, sir," replied the policeman. "Sorry to have troubled you.!

And he carefully entered the particulars in his book.

### The Biter Bit

Her Dad: "No, sir; I won't have my daughter tied for life to a stupid fool."

Her Suitor: "Then don't you think you'd better let me take her off your hands?"

### The Reward of Eloquence

The auctioneer held up a battered fiddle. "What am I offered for this antique violin?" he pathetically inquired. "Look it over. See the blurred finger marks of remorseless time. Note the stains of the hurrying years. To the merry noise of this old instrument, the brocaded dames of fair France may have danced the minuet in glittering Versailles. Perhaps the vestal virgins marched to its stirring rhythms in the feasts of Lupercalia. Ha, it bears an abraison—perhaps a touch of fire. Why, this may have been the very fiddle on which Nero played when Rome burned. How much am I offered for this fine old instrument?"

"Thirty cents," said a red nosed man in the front row.

"It's yours," cried the auctioneer cheerfully. "What's next?"

### The Knocker

She had a little hammer,
  She used it with a will,
She knocked at everybody
  They couldn't keep her still;
She knocked about her neighbors
  If they were friends or foes,
She knocked about the table
  And knocked about her clothes.
She knocked at hubby's smoking,
  About his snoring, too;
She knocked about his whistling,
  And so, perhaps, would you.
At last the Reaper claimed her,
  Her course on earth was run;
Her husband then considered
  Her knocking days were done.

But hubby went one evening
  To see a spirit show,
Where always in the gloaming,
  The spirits come and go.
He heard a spirit knocking—
  "My wife," he said, "I'll bet!
"Now isn't she a wonder?
  "Hear that! She's knocking yet!"

### The Real Curiosity

At a country fair in a Western State, one of the attractions of which was an exhibition of curious animals, there appeared a countryman attended by a large assortment of boys and girls and a wife with a huge sunbonnet.

The countryman took the "barker" for the exhibition into his confidence. "I'd like to go in and see them animals," said he, "but it would be kinder mean to go in without my family; and I can't afford to pay for my wife and fifteen children."

The city-reared "barker" stared at the man in amazement. "Are all those your children?" he asked, gasping.

"Every one of the fifteen," said the man.

"Just wait a minute and I'll fix it up for you," said the obliging "barker." "I'll bring out them animals and let 'em have a look at you and your family."

# "Amphibia"

**Waterproof**

# Leather Belting

is made to do hard work in a wet place better than any other Belt. Let us prove it to you by sending a Belt on trial.

We always carry a full stock of all kinds of Leather Belting.

## Sadler & Haworth

**Montreal - Toronto**

The New Slow Speed

# Sheldon Exhaust Fan

**The Fan that is revolutionizing the Shaving Exhaust Business**

It will handle wet or dry, long or short shavings and sawdust, and will do this work with a guaranteed reduction in speed of from 25% to 40% less and with a power consumption of 20% to 35% less, than any other exhaust fan. The Casing is very similar to that formerly used, but the wheel is of an entirely different design.

**Let us tell you more about it**

## SHELDONS LIMITED - Galt, Can.

# Common Sense About CUTTER HEADS

We know that a practical woodworker's judgment is often more to him than the testimonials of many users, hence we offer to send all our tools on trial, allowing the woodworker to be his own judge and jury. Many thousands of **Shimer Cutter Heads** have been sold on this plan. These thousands have sold other thousands. WHY?

Because they work all kinds of hard lumber, showing smoothly finished and correctly shaped tongue and groove outlines, and do the work with less labor and expense.

Because the Bits work in pairs and are divided into upper and lower series from a central line of the cut and are set upon seats inclined to give the leading points a perfect clearance, acting the same as a saw tooth when set.

Because the Cutters are circular in form and have in their contour the exact counterpart of the shape of the mould, saving all the hand fitting and affording great convenience in maintaining uniform patterns.

Because the entire circle of the Bit is tool cutting edge as it is worn back by use and repeated sharpenings, giving from 3 to 5 inches of cutting surface for edge wear.

Because at each sharpening of the Cutters a new edge presents itself for service uniform and true, without any special effort on the part of the filer.

Because the tongue and groove proportions can be expanded or contracted by the turning of a single lock nut, and without taking the heads off the spindles.

These and many other special features appeal to the practical mill man and make easy the work of the machine operator. If not conversant with the different makes and styles of Shimer Cutter Heads, send for our Catalogue and special literature.

**SEE THAT YOU GET THE GENUINE**

Look for the NAME and TRADE MARK "The Shimer Cutter Head" stamped on every Head we turn out. A dealer who would sell you an imitation means to deceive you—send them back and demand the genuine articles with our guarantee for your protection.

## Samuel J. Shimer & Sons,

**Branch of Milton, Pa. - Galt, Ontario, Can.**

# Whitney Shapers

## Double Spindle

Steadiness and accuracy on a Double Spindle Shaping machine is positively necessary to turn out work absolutely true to pattern. Just so is spindle speed essential, to do quick perfect edge shaping.

Both spindles on a Whitney Upright Double Spindle Shaping machine are finished to perfection and we obtain that fine balance which is demanded for high speed.

We see to it that the spindles travel at extra high speed, there must not be the least vibration, must not show any tendency to overheat, they they must run true and accurately and we are never satisfied until this is proven and proven again in the Whitney Shop, before a Whitney Double Spindle Shaper Machine leaves the plant.

When they do, we are positively certain that the accuracy we have obtained will last under wear because of the care taken in selecting material and the perfect workmanship attending.

To know more about the Better Shaper—WRITE

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# CANADIAN WOODWORKER

Vol. 10 Toronto, July, 1911 No. 1

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Endorsed and recommended by all Factory Inspectors.

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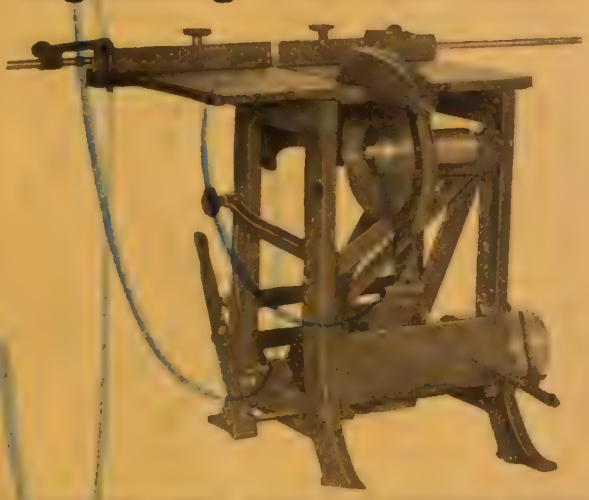
BOX E.

## Lightning Cut-Off Saw



**TO PRODUCE MORE WORK, TO INCREASE PROFITS**

We suggest our Lightning Cut Off saw. Is self contained. Feed semi-automatic. Saw n andrill runs in self oiling bearings.

*Write us for particulars and price*

**THE SOUTHAMPTON IRON WORKS**

**Southampton, Ont.**

From

## Nova Scotia to British Columbia

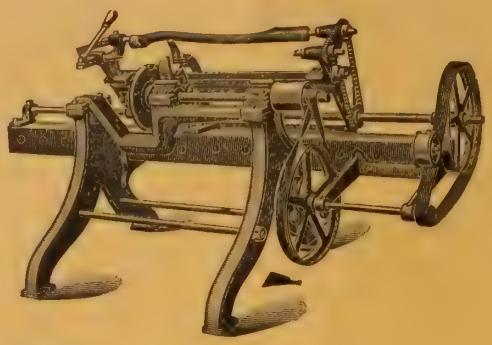
**Burton's** Saws are to be found in Mills, large and small.

We can tell you, or show you, good reasons, for this wide-spread sale.

Ask the Millman down street what he thinks of our saws, and if he is a user, he'll prove to be our best salesman.

Let us send you some facts about saws in general, and Burton's Saws in particular.

**THE A. J. BURTON SAW CO. Limited, VANCOUVER, B.C.**



This cut shows the No. 11 Ober Lathe for turning Axe, Adz, Pick, Sledge, Hammer and Hatchet Handles, Spokes, Whiffletrees, Gun Stocks, Shoe Lasts, etc., etc. It is very Simple, Strong and Durable, requires but very little power and is very quickly and easily changed from one kind of work to another.

We also manufacture other Lathes for making Spokes, Handles and Variety Work; Sanders, Shapers, Boring and Chucking Machines, etc., etc.

Complete Catalogue and Price List Free.

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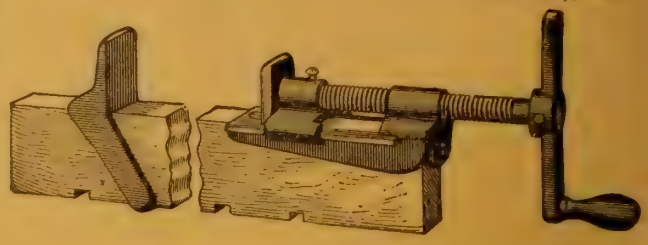
**31 Bell St., CHAGRIN FALLS, O., U. S. A.**

## Clamp Fixtures, Per Set, 50 Cents

Gentlemen :—We are pleased to state that the 25 dozen Patent Malleable Clamp Fixtures which we bought of you a little over a year ago are giving excellent service, We are well satisfied with them and shall be pleased to remember you whenever we want anything additional in this line.

Yours truly, CURTIS SASH & DOOR CO.,
Sioux City, Iowa.



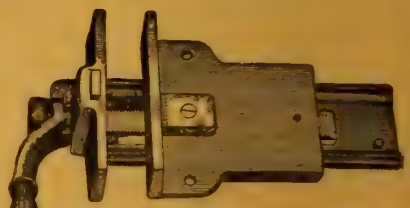
No. 1

STEEL BAR CLAMPS

The bars of our STEEL CLAMPS are especially tempered and guaranteed indestructable. Screws and fitting quickest possible action and made to stand any service or abuse. Don't fail to test sample of this clamp before you buy elsewhere.

Over 26,000 of our Steel Rack Guaranteed Vices

now in use We solicit the privilege of submitting samples of these specialties on terms that will be attractive to rated firms. Write for list and prices.



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## Satisfaction Guaranteed

You cannot help being satisfied with the NASH SANDER when you see it saving you 85% of your standing cost on such work

**Broom, Hoe,**
**Fork, Rake,**
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**Chair Stock,**
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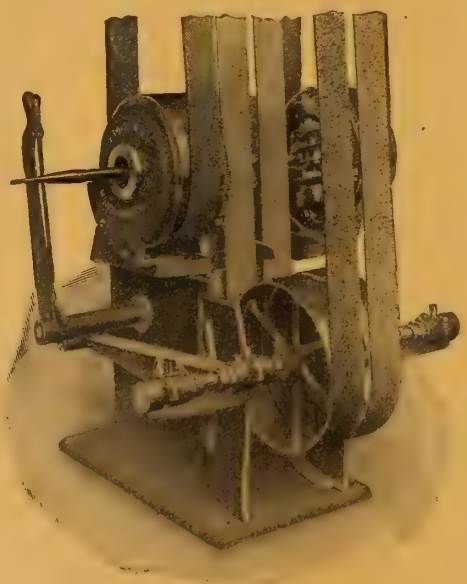

The greatly improved finish and saving in varnish only adds to your satisfaction.

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They not only do twice the work of any other grinding wheels—but they do it better and cleaner. They stand up well—do not burn the work—do not draw the temper even from the finest steel. Require almost no attention and last much longer than other abrasive wheels.

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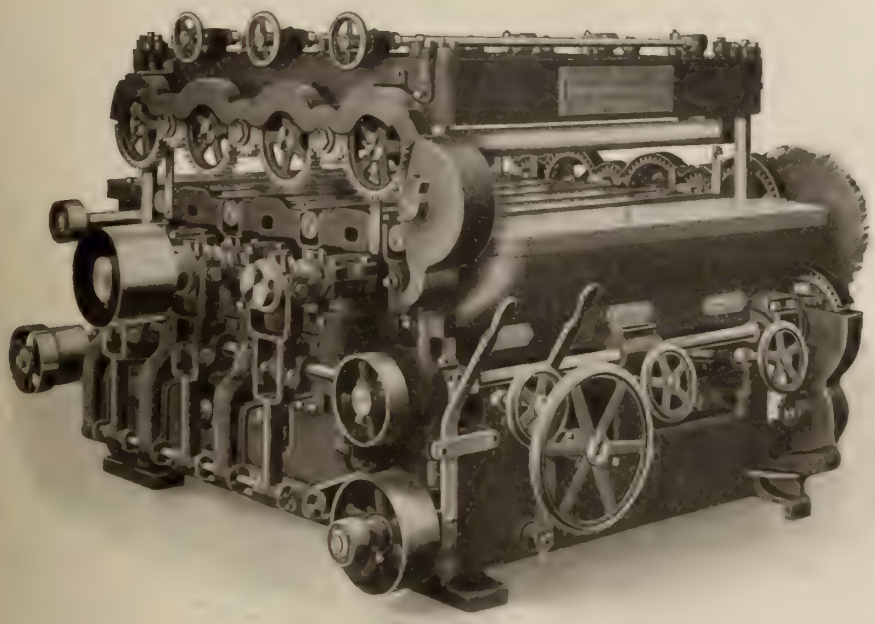

New No. 225 Triple Drum Sander

# Worth $1,000 per year to you

**are the following features of our NEW No. 225 TRIPLE DRUM SANDER, the machine which turns out such perfect work that hand labor and rubbing are entirely eliminated. We guarantee this to be the best Triple Drum Sander made. The price is $300.00 more than any, but it is worth it.**

## Because

1st—Each size of the No. 225 weighs 3,000 lbs. more than the same size of any other make.

2nd—It is the only Sander constructed in three parts, giving access to the drums in two minutes instead of five to ten hours as on other makes.

3rd—New Sandpaper can be placed on all three drums in from five to seven minutes.

4th—Our Automatic Take-Up is the only device which does not put the drum out of balance when it begins to take up the stretch in the paper.

5th—The patented covering furnished with our drnms is absolutely non-stretchable.

6th—The four corner screws are mounted on ball-bearings, insuring easy movement for upper works.

7th—All bearings have reservoir self-oiling features.

8th—With our oscillating mechanism it is practically impossible to produce markings, generally termed Waves and Planer marks.

9tn—All the mechanism of the entire machine is exposed and easily accessibie.

10th—All working adjustments are immediately in front of operator.

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# Maple Leaf Saws

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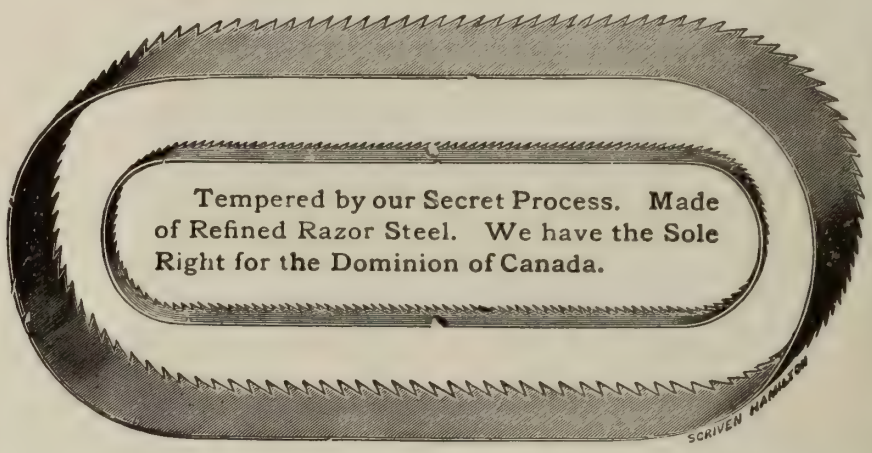
LARGEST SAW MANUFACTURERS UNDER THE BRITISH FLAG

We manufacture Circular Saws Gang Saws Mill Saws Band Saws Cross Cut Saws Buck Saws Saw Setts etc.




We manufacture high-grade **Band Saws** of all Widths and Lengths

These Saws are made of Refined Razor Steel, and Tempered by our Secret Process; for Fine Finish and Temper are not excelled.

**"Maple Leaf" Saws** are the best-tempered saws made

We are the only manufacturers in the world who export Saws in large quantities to the United States

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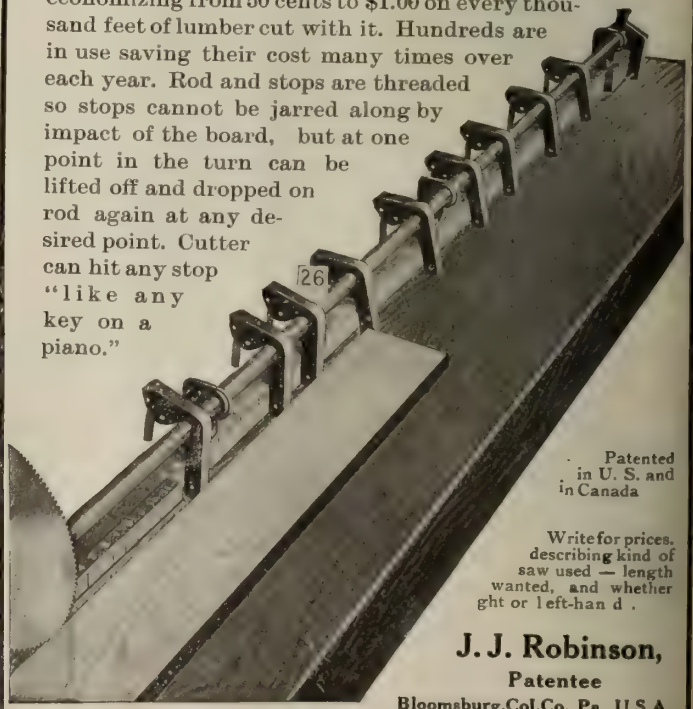


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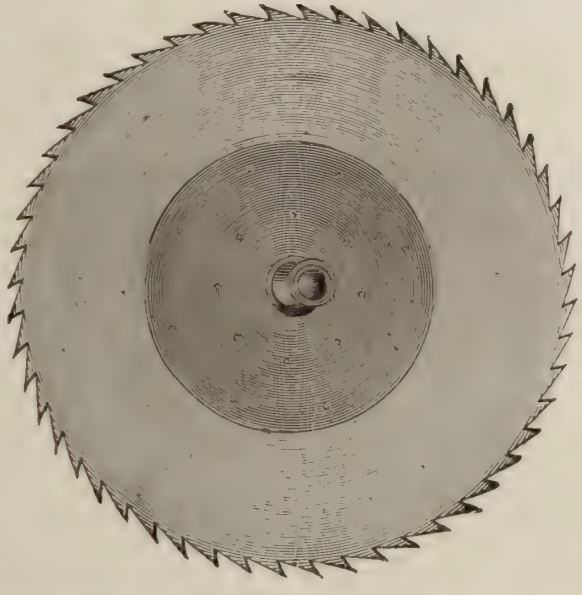

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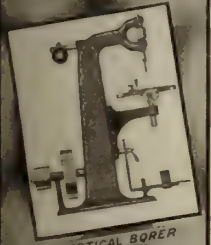
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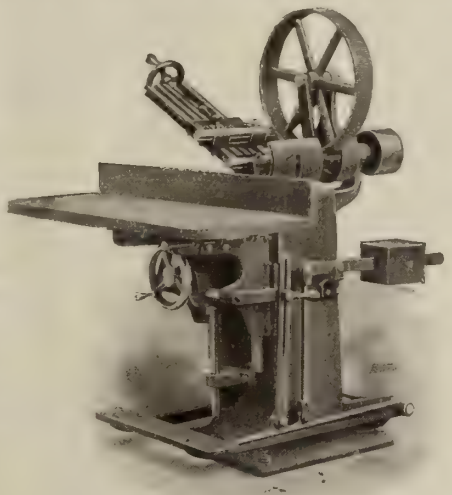

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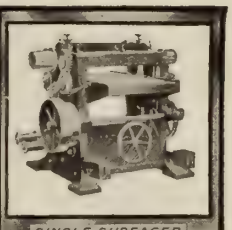
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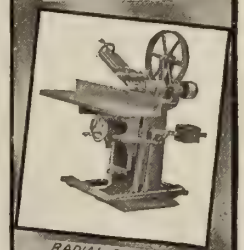
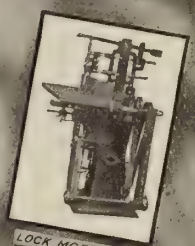

RADIAL BORER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All there is to a Saw is

**STEEL,**

**SKILL** AND

**STYLE**

THE Steel that is in a Simonds Saw has meant that to supply it we had to build a Steel Mill comprising seven buildings which, with yards, cover 14 acres of land. This much for the demand for Simonds Steel.

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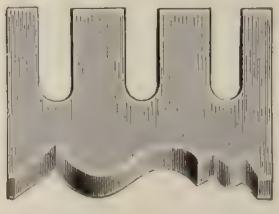

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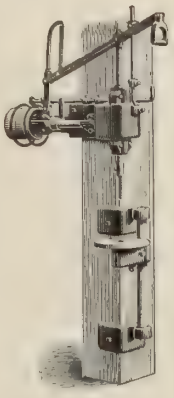
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**Defiance, Ohio, U.S.A.**

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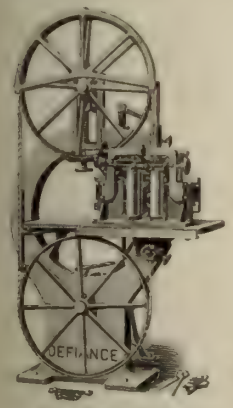
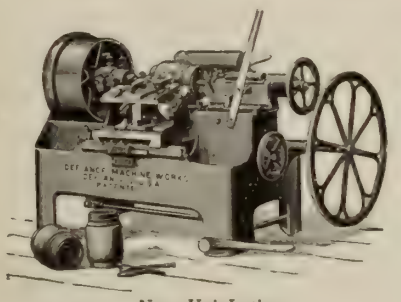
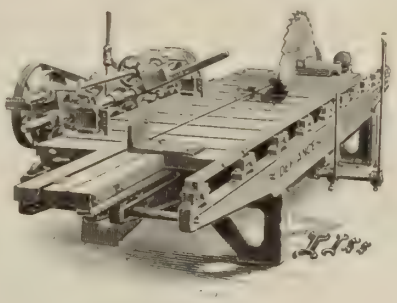
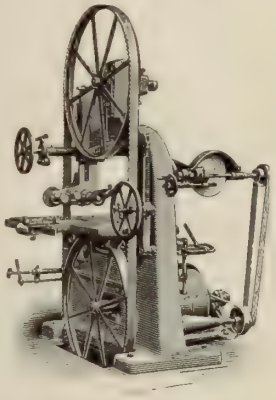
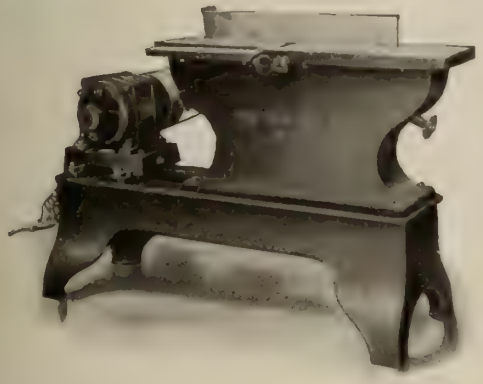


No. 6 Band Re-saw


No. 1 Hub Lathe


No 6 Bolting Saw


No. 4 Band Rip Saw



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We equip them to your order with Square or Safety Cylinder, with or without Bench, and with or without Motor.

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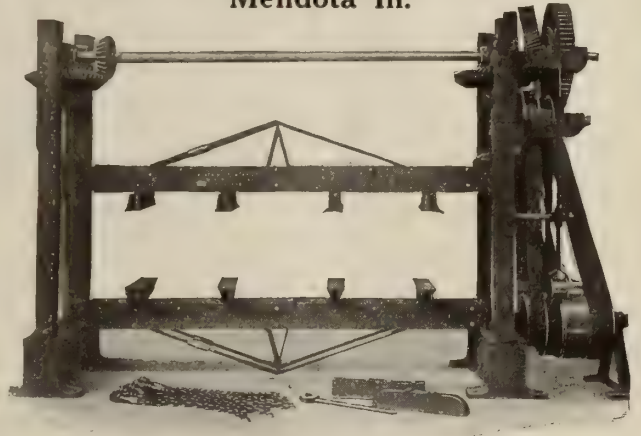

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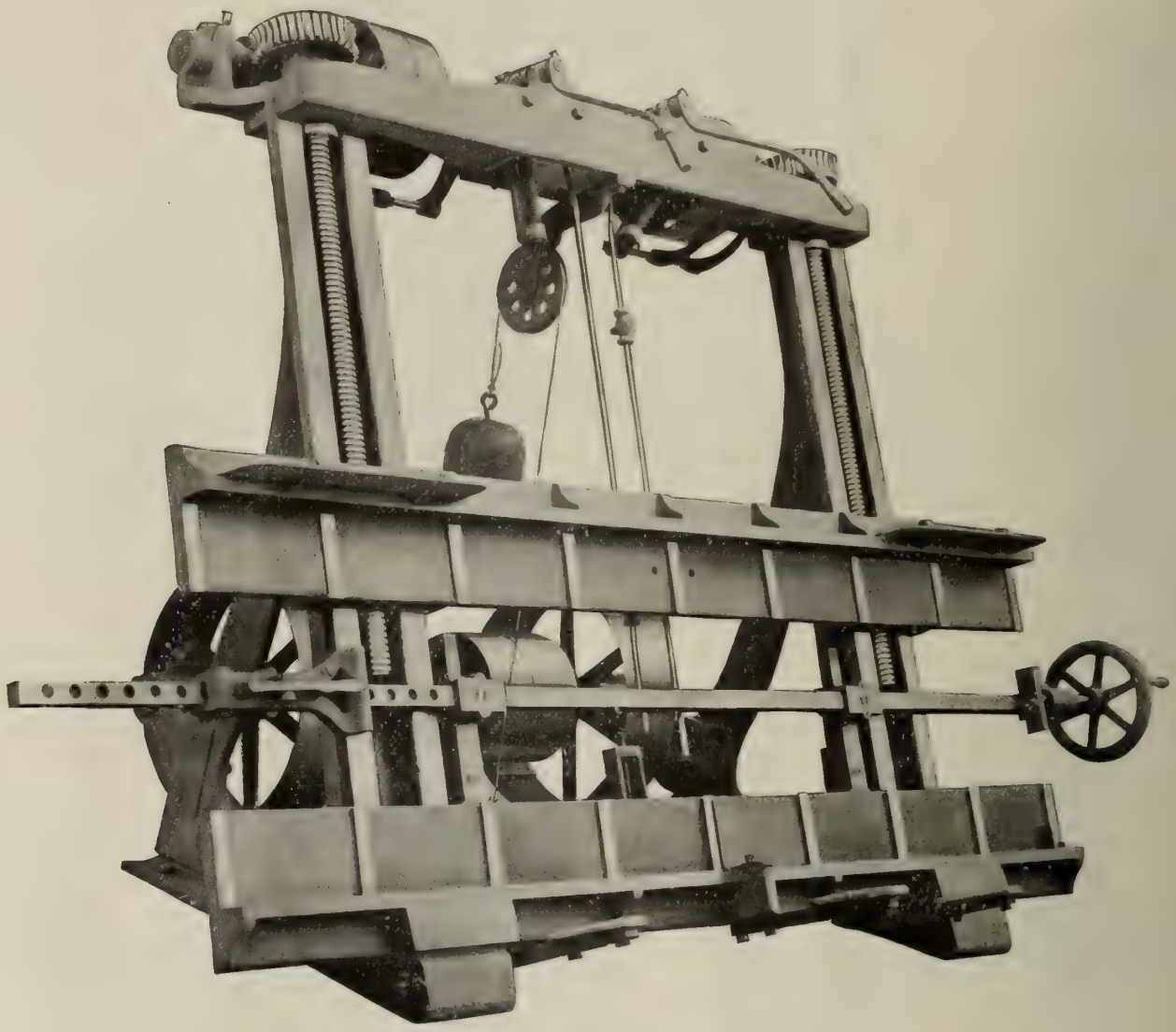

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# Canada Machinery Corporation

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# Canadian Woodworker

**Canada's Only Woodworking Paper**

Published in the interests of Planing Mills, Saw Mills, Furniture and Piano Factories, Implement and Carriage Works, Boxmakers and Coopers.

The Circulation extends from the Atlantic to the Pacific and covers thoroughly all classes of Woodworkers in this immense territory.

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ARTHUR W. DYAS, President and Managing Director

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Phone Main 5048

**111 Mail Building, Toronto, Canada**

United States: E. J. MACINTYRE, 4057 Perry St., Chicago.

SUBSCRIPTION RATE.

Canada, United States, $1.00; Great Britain, Australia and other countries 4s 6d., per year; other countries, $1.50. Advertising rates on request.

**Vol. 10** **July, 1911** **No. 1**


## Woodworking Shops Attract Intelligent Young Canadians

From reports sent in by our own correspondents and from information gained by personal visits made to different points, we find that manufacturers engaged in the various branches of the woodworking industries in Canada are enjoying good times.

It is interesting to note that many extensions are being made and new machinery installed. This, of course, means that more help is required.

It is also interesting to find that more boys than formerly are taking up woodworking and intend to make the trade their life work.

Perhaps the best explanation to this is that the woodworking industry as a means of livelihood is becoming more profitable than it was a few years ago. Then, too, the general conditions are better. Shops are well heated and kept clean and properly ventilated and equipped with up-to-date machinery, which make the work much lighter than was the case when old fashioned machines and methods were the rule.

These are all inducements that appeal to the boy about to leave school to start in on his life's work, and who shall say just how much the manual training schools have had to do in prompting so many bright boys to take up this line of work. Whatever the cause of this state of affairs it must be very gratifying to the manufacturer.

## Wire vs. Leather

There is a decided tendency on the part of machine men to use wire in preference to leather for the jointing of belts. Going through a plant recently we saw none but wire lacing in use, and in other shops and mills we found that wire lacing was being used to a more or less extent.

In two of these shops we saw a special device consisting of staples or hooks put up in strips suitable to the width of belt in use. By a simple and efficient method which assures that the points of hooks will pass through the belt evenly. The hooks or staples are held in position until clinched.

When the two ends of belts have been fitted with the hooks or staples the joint is completed by the insertion of a pin, which can be removed when it is necessary to take up the slack.

We saw this being done and the time spent was far less than it would have taken had leather lacing been used.

For using this kind of wire lacing a press can be had that grips the staples or hooks in the belt by the action of a lever. It is a simple affair and can be carried about from place to place.

## Small Industrial Towns and House Accommodation

In some of the best manufacturing towns in Canada there is, lacking in a more or less degree, house and rooming accommodation. This makes it difficult for manufacturers to secure the kind of help suitable to their needs.

Where this condition exists, the manufacturers would serve their best interests by building a number of houses and renting or selling them to their employees.

Much attention has been given to shop and factory systems in the effort to get the best results from the men; and it is just possible that the home life of the men has been lost sight of.

It has been frequently asserted that there is no sentiment in business. We don't believe that, as we know of many instances of a man's efficiency having been upset by a wife's dissatisfied claim either with the town or the house accommodation.

No man can do his best work with poor conditions. So it seems to us that if those men who are making it a business to create shop and factory systems or improve present ones should give this question a little consideration.

## Berlin a Good Town

Berlin's population is stated to be about 15,000, and the town has at least ninety manufacturing concerns, mostly engaged in the building and woodworking trades; many of them were established years ago —notably some of the piano and organ factories.

These establishments furnish employment to a great number of men and boys. The thrift of whom is testified to by the fact that seventy-five per cent. of the workmen own their own homes—good homes they are, too, built mostly of brick, detached, with lots allowing for spacious lawns and good gardens. These in every case are well kept and the absence of unsightly side and back fences permit of a clear view from street to street. This makes for good neighbor-

liness that perhaps in a measure accounts for the happy care-free faces of the people.

Berlin is certainly an attractive place for the artisan. The products of Berlin factories are shipped to all parts of Canada.

## A Tough Job

Editing a paper is a nice thing. If we publish jokes people say we are rattle brained. If we don't we are fossils. If we publish original matter they say we don't give them enough selections. If we give them selections they say we are too lazy to write. If we don't go to church we are heathens. If we do go we are hypocrites. If we remain at the office we ought to be out looking for news items. If we go out then we are not attending to business. If we wear old clothes we are stingy, if we wear new clothes they say we have a pull. Now, what are we to do? Just as likely as not some one will say that we stole this from an exchange. So we did, but they also stole it.

## The Electric Motor in the Planing Mill and Furniture Shops

We do not know just how many motors are in use in planing mills and furniture factories but the number is being added to daily.

There was a time when the manufacturer hesitated about increasing his machinery equipment as it meant in some cases a new steam plant. To-day no hesitation exists on that account. He gets as many more machines as he requires, places them in the most convenient part of the shop and drives them direct or in groups, just as circumstances seem to warrant.

This is usually done with little or no disturbance to the other machines or present line shafting.

We have been in some shops where the only power used is the electric motor driven and it is giving entire satisfaction. The by-product such as sawdust and shavings are easily disposed of. The strips and the waste wood find a ready sale at good prices for kindling.

## More Time in Clamps

It seems to be the opinion of those who have studied the subject and are expressing themselves, that users of veneer should give their stock more time in the clamps, this time to vary in different institutions from a few hours in some to probably twenty-four hours in others. It is doubtful if much stock is left standing more than twenty-four hours, except in cases where it is not wanted and the forms are not required for other work; then it may stand for two of three days. Is some of the argument being presented is sound in theory, it would probably be better if lots of veneer work could stay two or three days in the clamps.

There are two reasons urged for this. The first is that the glue does not thoroughly set so quickly as we may think, and the primary setting of the glue that holds the work tightly enough that it will not fall apart, is not enough on particular jobs; it should be kept in clamps until the glue has so thoroughly set and hardened that there is no danger creeping and showing up badly. The other reason urged is that strains set up in the work because of the moisture from the glue penetrating the wood, and these strains do not entirely leave until all the moisture has been evaporated and the wood has thus relieved itself by the strains simply wearing themselves out. There seems enough to this argument, too, that it may well be heeded, and that veneer users should strive, for the sake of better work, to give more time in the clamps.

The poorest place to keep tools of any kind is on the floor or up in some brace or on a beam. If laid upon the floor, they get into the shavings, and when you want them it costs more to hunt them up than they are worth. If you leave a tool in some brace or on some beam, you forget where you put it, and it is only found by accident, if ever it is found. The only way to keep tools is to have a place for each and cultivate a habit of keeping it there. A rule should always be kept in a handy pocket, unless you have a tool box on one side of the saw or fastened to the machine you are working on. Get the habit of keeping tools in a place for tools, and, above all, don't forget where you put them.

## Manufacturers Will Meet in Toronto

The Canadian Manufacturers Association will meet in Toronto September 19th to the 21st. About 500 are expected to be in attendance.

The King Edward Hotel will be the headquarters.

At a recent lecture delivered by a famous Scotchman at the University of Edinburgh, it was claimed that the timber loss in the United States caused by insects and fungi, each year represented a sum of money greater than the cost of a year's up-keep of the army and navy, and over a ten years' period the amount of timber killed and reduced in value in America by insects represented an average loss of $62,500,000 each year.

## The Class of Immigrant Canada Wants

Ottawa.—Not only is Canada attracting a greater number of immigrants that at any past period in her history, but figures completed by the Customs Department show that they are bringing in with them millions of dollars' worth of personal belongings, to say nothing of the cash which they have in their possession in the shape of either gold or drafts. The latter amount cannot be estimated. There is no machinery by which the Government can enquire how much money a newcomer has, so long as he possesses the amount required to enable him to be admitted, which is $25 in summer and $50 in winter.

Last year was not only a record in the number of immigrants, is was a record-breaker in the value of the effects which they brought into Canada. The total reached the enormous sum of $14,072,611, or very nearly four million dollars' worth more than in the year ended March, 1910.

# Exports and Imports

## Trade Enquiries

The following inquiries have been received from English and other countries relating to Canadian trade. The names of the firms and their addresses may be secured by interested parties by writing to the Enquirers Department, Canadian Woodworker.

Any of our readers who are answering these inquiries, should not fail to forward references, particularly if bankers' references.

Please quote the reference number when requesting addresses.

1. **Wooden seats and cabinet ware for water closets.**—A Cape Town General Commission Agent desires to be placed in communication with Canadian manufacturers and exporters of wooden seats and cabinet ware for water closets.

2. **Agent in Vancouver.**—A Liverpool firm of hardware merchants desires to appoint an agent in Vancouver.

3. **Lumber.**—An Auckland, New Zealand, manufacturers' agent with good business connections would like to represent a Canadian lumber company. References given.

4. **Maple wood blocks.**—A correspondent in the Midlands of England is in the market for 40,000 maple wood blocks, 9 in. x 3 in. x 1⅛ in., and would like to receive quotations either from United Kingdom importers, or direct from Canadian shippers.

5. **Sycamore blocks.**—A Lancashire firm is in the market for sycamore blocks from 6 in. diameter to 48 in., in lengths from 2ft. 6 in. to 12 ft., roughly trimmed with the adze.

6. **Lumber.**—A South African firm of wholesale merchants desires to be placed in communication with Canadian manufacturers and exporters of lumber, such as Douglas fir, (or Oregon pine), spruce deals and deal ends, white pine for shelving and poplar.

7. **Agricultural implements and machinery.** — A South African firm of wholesale merchants wishes to be put in touch with Canadian manufacturers and exporters of agricultural implements and machinery, such as ploughs, harrows, cultivators, planters, seed drills, and harvesting machinery.

8. **Cart and wagon material.**—A South African firm of wholesale merchants desires to be placed in communication with Canadian manufacturers and exporters of cart and wagon material, such as hubs, spokes, rims, shafts, axles, bushes and springs.

9. **Tubular cream separators, churns and dairy accessories.**—A South African firm of wholesale merchants wishes to be put in touch with Canadian manufacturers and exporters of tubular cream separators, churns and dairy accessories.

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## Canadian Exports to New Zealand Increasing Trade Notes

Ottawa, June.—Canadian trade with New Zealand is increasing. In the fiscal year exports to that country from Canada totalled $1,404,525, an increase of over $400,000. One Canadian firm has sold 320 automobiles there this year, and the big items of increase are motor cars chassis $75,000, and news print $55,000. The figures are from a report of W. A. Beddoe, commissioner.

### Newfoundland

Canadian forest products principally used in Newfoundland are as follows:—

Spruce dimensioned timber, 10 x 10 to 12 x 12, is used only when local timber is not in sufficient supply and especially when the sizes required are in excess of what the local market can supply. The quantity imported during the fiscal year ending June 30, 1910, was valued at $13,364, as against $15,737 in 1909, and $25,817 in 1908.

The same is true of spruce joisting, 2 inch and 3 inch thick, 9 inch to 12 inch wide, 18 to 25 feet long.

Canadian grey birch is used for shipbuilding and mill-wright purposes. From 100,000 to 200,000 feet of this is required annually, as the local birch is not satisfactory for these purposes.

A trade in birch and maple flooring, dressed and matched, is springing up, as local forests supply nothing suitable. Not many hardwood floors are yet in use, but the use of maple and birch flooring is increasing.

### Best Grades Only

Nothing except the best grades is imported. The local market supplies all requirements in lower grades.

### Transport Facilities

It is urged that the principal avenue is via Halifax, Red Cross, Allan and Furness lines, since these lines offer conveyance the year round. Next in importance is the Black Diamond line from Montreal, only available while St. Lawrence navigation is open. Considerable advantage is taken of the Sydney and Gulf route with the Newfoundland Railway. There is very little transporting done in any other way than these mentioned.

### Forest Products

Bristol a distributing centre

When it is understood that about 25 per cent. of all the forest products imported into Great Britain are brought into the country for distribution through Bristol channel ports, the opportunities they afford for increased supplies from Canada will be worthy of consideration on the part of exporters, and the following details concerning the various ports of discharge are submitted for their information. The timber business is in the hands of experienced firms who thoroughly understand the requirements of their respective districts, some of whom no doubt will be well pleased to increase their Canadian imports whenever prices permitted doing so to advantage. The class of timber produced in Canada has to meet the competition of that sent to this country from North-

(continued on page 17)

# Planing and Saw Mill

## How it is Done, or the Knack of Getting There

Every man worth while has ambitions, and these ambitions are appealed to and worked on persistency by writers and speakers. We are told to not look at the clock, but fall in love with the job, and a whole lot of other things that are probably good, and necessary, too, but it all falls short in that it doesn't give enough specific instructions about how to "get there." Our ambitions and ideals are too often followed by disappointment, because we see others making progress, who, so far as we can see, don't deserve any more than ourselves, and quite frequently the average man gets to wondering why it is and how it is; why it is that others get along better than himself, and how it is they do it. Too often judgment is flavored by some of the bitterness of disappointed hopes, and we attribute the progress of others to either favoriteism, luck or some other element usually fortunate in a way, it is as a rule because they knew, either by study or natural instinct, how to do the right thing at the right time.

In some institutions the proprietor or foreman, taking special interest in the progress of the employees, will keep close watch on the peculiar abilities of each, and by changing them about from place to place, be able to figure out the matter in a way which, though it may be imperfect, helps considerably. In a place of this kind a man who has ambition and backs it up with persistent efforts, is likely to get the recognition due him without having to expend a great deal of thought himself as to how to move up a step. In many institutions, however—in fact, it might be said in the majority of them—the employer is more concerned in getting out his work than in promoting the interests of the men, so each man is left to figure out his own qualifications and select the steps he thinks the most advisable to take in moving up. Then the knack of "getting there" consists in not only knowing what you are best qualified for, but how to go about attaining it.

Let us assume, by way of illustration to furnish a point in this specific study of how to progress, that a young man who is working at the rip saw or something of this kind, has an ambition to work on the band saw. It is evident that he can't learn to be a band sawyer by continuing at the rip saw. He can do a certain amount of observation, but by and by comes the question of how he is to get to be a band sawyer without running a band saw, and how he is going to get a chance to run a band saw without first being a band sawyer? It is well known to those who have made a study of the matter that the only way to learn to run a machine is to go right at running it. The great trouble is to get an opportunity, to get turned loose with a machine with the chance of familiarizing one's self with it and master the details thoroughly.

Sometimes when a man gets up to this point, he makes a mistake; he gives up his old place and goes to a new institution, after having made a study of band sawing and made up his mind he wants to run such a machine and tells his new employer, for the sake of insuring a chance to try the machine, that he is a band sawyer. The new employer puts him to work, but soon finds out the young fellow is not familiar with the band saw, then believes him more of a liar than a band sawyer, and naturally is not very favorably impressed. We all know that, but the question is, what is the young man going to do? It he tells the prospective employer he wants to be a band sawyer, but has never tried it, there is not much chance for him to get even a trial, but if he can just get a trial he may make good. Generally speaking, the best way is to go right into the shop where you are familiar with everybody, and do the work around you so well your employer must look with favor on you. This puts you in a position to ask favors, and when the band sawyer is off a day or an hour, go to your employer, explain your ambitions to him, and ask that you be given an opportunity to do the work of an experienced man, but if you make good you will soon be "getting there" in proper shape.

What applies in this instance applies also to one's ambition to run any machine. You must have the definite aim first, then, while keeping your aim before you, don't let it be a drag on your other work. Do whatever has been assigned to you well; put enough energy and thought into it to make it not merely good work, but really commendable. Until you do that you need not ask for or expect favors. It won't get you anything but a bad reputation to feel and act as though you were above the work assigned you, and give as a reason why you do it indifferently that you are cut out for better things. No man is cut out for better things until he has learned to master the smaller ones. None need hope to attain higher things by assuming an attitude of superiority. He will simply get himself disliked, see other men attain their ambitions, an he be left to wonder bitterly why it is, why the other fellow is a favorite, although he has superior ideas, and why he is left behind. Superior ideas and the knack of "getting there" consists in doing what you have before you as well as you can—and watching for and taking advantage of opportunities for advancement.

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## Babbitting

As with speed, so it is with babbitting boxes. Some spend five or six hours scraping, while others set the machine up and run it while the other man is doing the scraping. Anciently, when the shafts for cylinder heads and hide cutter spindles were small and made up of poor stock, there might have been truth in the theory that pouring hot babbitt into a box would spring the shaft, but after pouring many hundred boxes I have yet to see one sprung from babbitting. Put a good sheet of thick writing paper around the shaft and fasten it with a heavy piece of hard cotton line, to form a good oil channel, and the chances are the paper will not be burned off and you will get a box that time spent in scraping would be utterly thrown away on.

### A Saw Guide Recently Patented by C. Kessler, Elk, Washington

The guide is adapted to be secured to a tree and to hold a saw therein, and to guide the saw as it cuts the tree, so that the angle of cut can be controlled at all times. Use is made of a support for securing the support to the tree, and a series of adjustably connected supports, and a saw guide adjustably mounted on one of the supports and adapted to slide in the guide.

### Saw for Cutting Steel

The employment of high speed revolving disks of mild steel for cutting hard steel has become common, but the process always excites the astonishment of the uninitiated. The disks are preferably made of boiler plate quality and are about a quarter of an inch thick. They revolve with a peripheral speed of as much as 20,000 feet a minute. One of these disks will cut through a heavy channel section of hard steel, 12 by 6¾ inches, in 15 seconds.

It appears to act by local fusion. The very high speed causes thousands of inches of surface to impinge in rapid succession on the metal undercut, so that its temperature at the point of contact becomes very high, although the disk, owing to its large surface area, remains relatively cool. All its frictional energy is concentrated on an extremely small area of contact. The work is done so quickly that the heat has no time to spread in the metal undercut, and the sides of the cut portion are only a little warmed.

# The Dowel Door Earning a Deserved Popularity

**Makers Find it a Good Profitable Selling Line With Many Advantages in Manufacture**

The manufacturing of dowelled doors is a special feature of the door business. This is because it requires a set of machinery made for the purpose, consisting of a double end tenon machine, a combination boring and glueing machine for boring the rails and driving in the dowels. Another interesting machine is the one for boring the stiles; two can be bored at the same time.

Also a dowel making machine, and last, but not the least, by any means, are the automatic door clamps. These can be had either on the upright plane or horizontal.

Manufacturers who have been wise enough to invest in the machines mentioned are getting a good return from the outlay, particularly this season. This must be very gratifying in view of the fact that when first introduced the dowelled door did not receive anything like the success it really deserved.

Many obstacles were met with and had to be overcome, the greatest obstacle being the prejudice that existed in the minds of some who held to the view that no method of door construction could equal that of the mortise and tenon.

That this objection is gradually disappearing is proved by the fact that all the firms in Canada who are making a specialty of dowelled doors are taxed at the present time to their full capacity to keep up with the demand. This, too, in spite of the further fact that several firms we know of enlarged their plant a year or so ago. Indeed, some plants have had to run overtime to keep up the supply, and are now contemplating further enlargement of plant and machinery.

One reason, and perhaps the chief reason why the dowelled door is in such great demand is that it looks well when placed, owing to the absence of end-wood showing. Another reason advanced, and in which there is a good deal of merit, is that less wood has to be cut away from the stiles for dowels than is the case where a mortise is made, consequently the door is much stronger.

The methods of making the dowelled door are somewhat different to those employed when making the wedged door, a study of which will convey some idea of the relative cost.

When making the wedged door the stiles must be laid out for the mortise. Only one mortise can be made at a time. When making dowelled doors no laying out is required; just a simple adjustment of the boring machine which takes care of two stiles at the same time.

Rails for the wedge doors have to go to the bench hand, who removes any over-wood that may have been left by the plough knife, also he will bevel off the ends of tenons in order to effect an easy entrance into the stile.

The rails for the dowel door are passed over to the men who operate the boring machine, one of whom takes care of the boring and the other attends to the inserting of the dowels. It is well to mention here that this machine is one that requires the attention of two men and is usually provided with an automatic glueing attachment.

When a wedged door has been clamped the wedges have to be trimmed off, this takes a certain amount of time which is dispensed with in the case of the dowel door.

From this brief description of the different methods and work required when making a dowell door in comparison with that of the wedged door, together with a consideration of the fact that from eight to ten cents is saved in material alone, in producing the former make of door. Add to this the fact that about nine feet less of sticking is required when making the standard six-crossed panel dowel door. This latter saving is offset to some extent as fourteen feet of dowel material is required. But as this can be made from edgings, and can be run at the rate of fifty feet per minute, on a machine with an attachment that points the ends and cuts the dowels to the correct length. At the same time there is, we think, a saving effected.

However, the dowel door has passed the experimental stage and at the close of the present busy season manufacturers intend stocking up in large quantities in the many different styles that the Canadian trade calls for.

### How Many Knives

Once more this most important question is being thrashed out in debate by mill foremen, and so perhaps my views on the subject may be put forward with the rest. I shall not attempt to lay down hard-

and-fast rules and regulations for all sorts and conditions of machines on which knives are used. I will content myself with one only, and that shall be the "Overhand," which every woodworker will admit is a very important tool.

It has been said that two knives or cutters are not sufficient for fast and smooth work. Why? Because it leaves knife marks on the timber, especially if wood is passed over quickly. Everyone knows that an overhand in good condition will make a good job if the feeding is slow enough. But that's where the trouble arises. In these days of keen competition everything goes too slow for the employer who is fortunate enough to have a lot of work in hand. He wants the men to feed the machines faster. We cannot blame him. But, perhaps, by our discussing this question I can show him where he is at fault, and also point out how the output can be increased very considerably. In the first place, I would strongly advise him to have a circular cutter-block of a good make fitted to his machine; he should also have roller bearings at least three diameters long; then, instead of running the cutter-block at 3,000 revolutions per minute, he can safely increase it to 6,000 or 7,000 revolutions. Then he can increase the feed, and get 50 per cent. more work done with the same machine.

Speed is everything in wood cutting, providing the bearings are made to stand the strain. It will take a little more power to get the extra speed, but the results will all be better for the millowner and the machine-man. As I have had the care of a few machine shops, I know from experience that overhands are run too slow to get the best results from them. They are a class by themselves, and must not be confounded with a planer proper that has to tear off ⅛ in. or more at a time, when occasion arises. The overhand, however, is usually set very fine for facing and edging, so that it may run much faster with perfect safety and success.

So, from my point of view, it is not "how many knives?" but how fast can we run her? I have seen a great many machines of this class running too slow, but I never heard of one that suffered from too much speed.

## Simonds Saw Co's. New Plant Opened at Lockport, N. Y.

The officers and employees of the Simonds Saw Company were at home to the citizens of Lockport where they have just opened their new plant. The guests who were shown over the various buildings were much surprised at their size and marvelled at the wonderful machinery which is used in the manufacture of their product.

### Machinery a Model of Its Kind

It was in No. 2 building that visitors stood spellbound at the sight of the machinery in operation, dumping the molten metal into the casting pots and afterward lifting it out in the form of steel ingots, the huge 500-ton steel crane extending from wall to wall being an object lesson in mechanical accuracy and efficiency. From this building the ingots pass on their westward way to Building No. 3 which is the rolling mill proper and here the ingots are rolled into plates for circular, cross-cut and band-saws one of the most interesting points in the whole operation.

From the time the steel assumes the form of an ingot, the process of heating it is by crude oil which is used throughout the remainder of the operation. The ingots, again heated, are passed again and again through rolls until finally they are pressed into bands of the desired size and shape. From Lockport, these bands go to Fitchburg, Mass., Montreal and Chicago, where they are made into saws and marketed.

Utter absence of shafting and belts together with individual motors on almost every piece of the huge machinery, are striking features of the different buildings which are model and modern in structure and equipment of the most minute detail. The motors are attached practically direct to each machine and the ease of manipulation together with the convenience and promptness were marvellous even in an electric age and in the city of electric power.

### Facts and Figures of Simonds Plant

| | |
|---|---|
| Number men employed ... ... ... ... ... | 250 |
| Increased July 1st to ... ... ... ... ... ... | 300 |
| Amt. annual pay-roll ... ... ... ... ... | $196,000 |
| Yearly expenditure in city ... ... ... ... | $ 35,000 |

## The Care of Bolts and Nuts

The proper care and use of bolts and nuts should be understood by everybody, and needs no special elaboration, yet even in this enlightened day there appeared recently, in some of the automobile papers, a bit of a little elaboration on bolts and nuts.

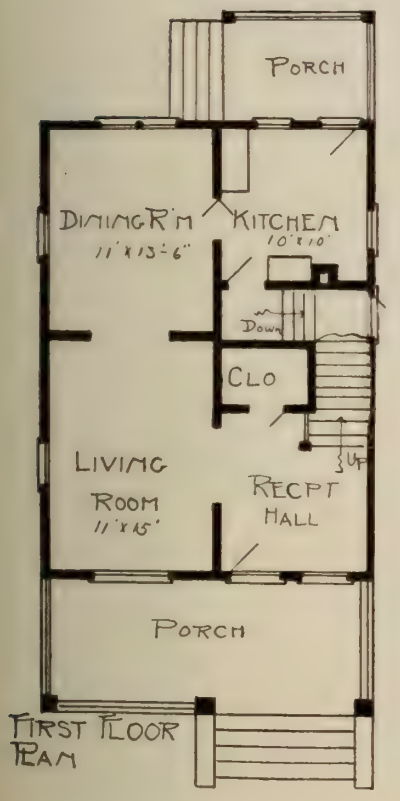
In this bit of advice it is pointed out that when one has a bolt or a nut that is loose and seems inclined to slip threads, winding a small string around the bolt, will make the nut tight and also cause it to grip the threads. This is an old makeshift ready that has no place whatever in clean-cut mechanics. A nut should fit snugly on a bolt, and whenever it is so loose that it slips threads, it is not only unreliable, but in some places becomes dangerous, and should not be tolerated at all. It is time then to either get a new nut or a new bolt, or both.

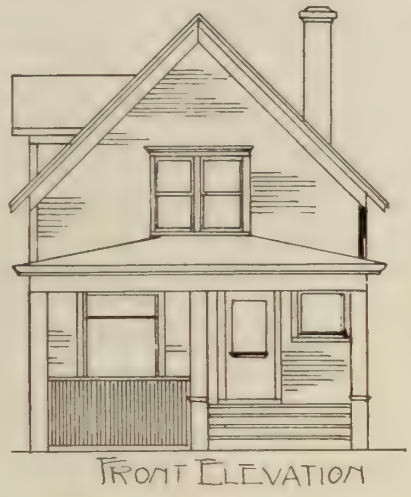
Many a bolt and nut is spoiled by over-straining with wrenches. Some of them may be weak originally by not fitting tightly enough. The ideal nut is one that fits snugly and holds firmly, will not rattle and cannot be spun around with the finger, but moves easily, yet shows that it has a full-depth bearing in the threads. Given a nut of this kind, and it should be handled with some regard to its size and strength. Use only such wrenches as belong to the size nut, and use them with sense, so as not to strain the nut, but get it tightened firmly with a pressure commensurate with its dimensions.

Most planers are provided with wrenches suitable for the different bolts, but many an operator, not satisfied with these, will get the biggest wrench he can find on the place to tighten down the cutter bolts. By and by he strains them and slips the threads; then he has a job of repairing on hand, or else a dangerous machine.

Bolts and nuts require the same consideration as machine parts, and that is, proper use and not abuse. Ordinarily it is better to have a nut or bolt a little bit tight than to have it too loose. Also, when a nut shows loose, the remedy is not in a string or in battering up the end of the bolt, but in supplying a new nut or in doubling it and use a jamb nut. Jamb nuts are excellent things, especially where the strain is severe or where there is vibration that is likely to shake them loose. The top nut, tightening on the bolt end, affords not only a surer grip to the whole bolt, but if both nuts fit as they should, they ensure practical safety from jarring off with vibration.

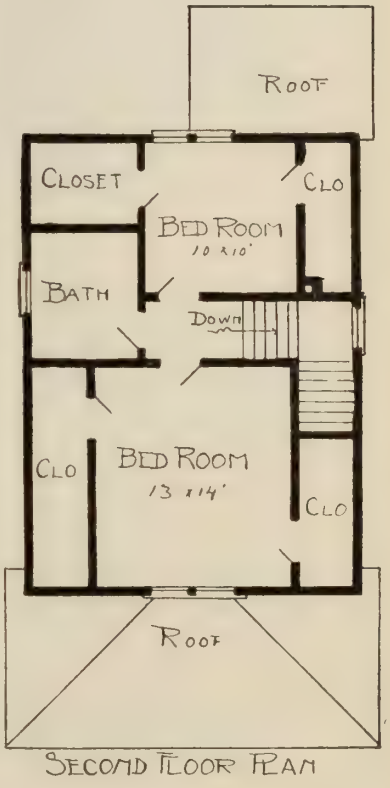
# The Carpenter and Builder




The front elevation and plans of a cottage 22 x 30 feet with a reception hall, living room, dining room and kitchen on the first floor, two good bed rooms, bath room and plenty of good closet room on the second floor. The stairs to the second floor start fram the reception hall, and the celler stairs from the kitchen are under the front stairs with a grade door. A 9-foot porch in front and a 6 x 10-foot in the hear. This building finished in Georgia pine, trimmed with yellow pine floors, hot air furnace and good plumbing, can be built for about $2,000.

If any of our readers should desire further or more detailed working plans, we could supply same at a cost of $12.00. These are the original drawings from the architect.




## How the Thrifty Canadian Woodworker in Some Localities is Solving the House Problem

There is a very strong desire, on the part of the Canadian workingman to become the owner of a house, and no one is better able to carry out this desire than is the carpenter and woodworker.

In many of the cities and towns in Canada, nicely situated building lots can be bought by making a small payment down—the balance being paid monthly.

A good many men secure a lot on these terms and get their supplies from the firm they are engaged with, paying for them by allowing so much to be deducted from their wages each pay-day. Sometimes only the kitchen of the house is built at first and the main part completed later, and what at first seemed but a small beginning develops into a comfortable home. This may seem a slow way in which to get a home, but it is the Canadian way and shows how the Canadian is solving the house problem in some localities.

In an undertaking of this nature the carpenter and and woodworker have a special advantage over men engaged in other lines of work, for the reason already pointed out. He can get his material on the instalment plan as it were. Also he can count on getting the help of his shopmates. The carpenter of course can do his own planing, and while as a rule the machine hand knows something about building construction he has not enough working knowledge to enable him to handle a job of this kind, hence the drawing of the cottage we show, together with the plan for same, will prove interesting.

The size is 22x30, but if that is too large or too small, the change to the size required can easily be made. This is a mere detail, a matter of extending

# The Linderman Automatic Dovetail Glue Jointer

## QUALITY SAVING AND CAPACITY

Over your present method or machine, are very essential in determining the installation of improved methods.

The quality of your product is the most important, but when you can get quality and a saving of considerable labor, lumber and glue it means a reduction in the cost of your product.

In jointing lumber together on the

## LINDERMAN AUTOMATIC DOVETAIL GLUE JOINTER

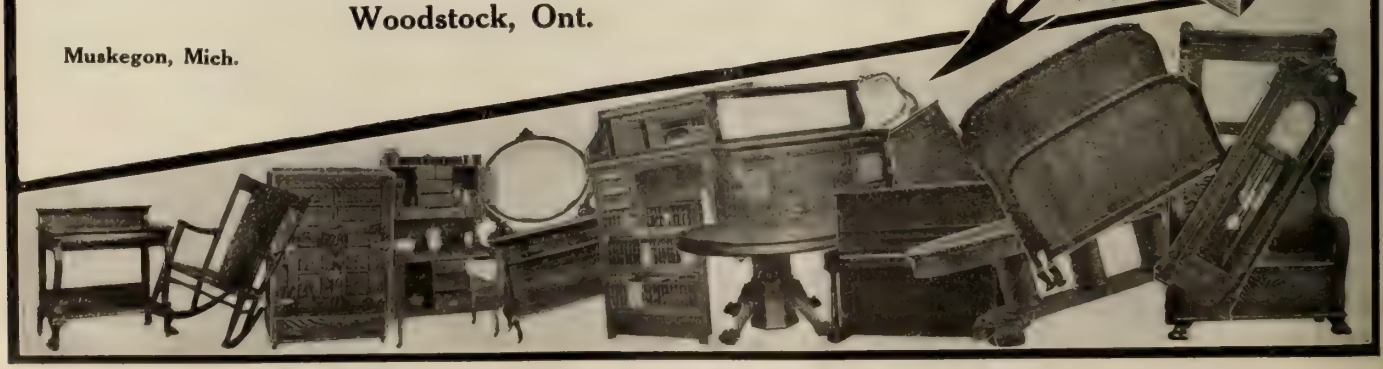
it does not take a mathematician to figure the enormous saving it accomplishes, because it takes the lumber from the cut-off saw, and completes all the jointing operations and sizes the panel to the exact width without waste automatically at a cost of no more than it does to straighten the edge or put a "V" tongue and groove on the lumber.

As to quality, let us tell you how it is accomplished with the *Tapering Wedge Dovetail Glue Joint.*

## Canadian Linderman Co., Ltd.

**Woodstock, Ont.**

**Muskegon, Mich.**



or contracting and will not, unless the change is too great, spoil the pleasing appearance the drawing conveys.

The material to be used will be governed by the by-laws that exist in the locality in which the building is to be erected. Also the cost will very largely be determined by the same conditions.

## Individuality in the Small House

The builder too frequently considers that individuality and design of a cottage and small dwelling is impossible. As a matter of fact, there is as ample scope for individuality in a small house as in a large one. To look well, a large home must necessarily be designed in some one of the several well established styles of domestic architecture. The plan may vary, the size may vary, the cost may vary, but in style it must be either English, classical (which includes the colonial style) or mission.

In the design of a cottage the situation is entirely different. For this reason, a cottage home can be built in a style of its own, and need fill only one requirement, and that is that it be pleasing to the eye.

Many expedients can be used that give it a touch of individuality. When the location is suburban, and the lot is of sufficient width the porch can be placed on the side, and be used as an auxiliary to the living room, still maintaining a formal entrance on the front. Outside fireplace chimneys are often used to support the design with a touch of picturesqueness.

The style, size and shape of dormer windows for cottage homes is unlimited, and often take an important part in the attractiveness of the home. Bay windows, window seats, oriole windows, piano windows and casement windows are at the command of the designer without number.

### Split or Rived Shingles

In commenting upon the fact that the outside walls of bungalows are occasionally covered with cypress shingles which are split or rived instead of sawn, a writer makes the point that while the cost is very much greater than where other kinds of shingles are used the expense is justified by reason of the more attractive effects produced. "The sawn shingle" he says, "is apt to get a dingy, weather-beaten look under the action of sun and wind, unless some treatment such as oil or stain is given to it in the beginning. But the rived shingle has exactly the surface of the growing tree from which the bark has been peeled, or, to be more exact, of the split surface of a trunk from which a bough has been torn, leaving the wood exposed.

"This smooth natural surface takes on a beautiful color quality under the action of the weather, as the color of the wood itself deepens and shows as an undertone below the smooth, silvery sheen of the surface, an effect which is entirely lost when this natural glint is covered with the 'fuzz' left by the saw."

## Building Permits Record

The total record of building permits for leading cities in Canada for month of May, 1911, was $17,733,154.00.

| | |
|---|---|
| Calgary | $3,700,000 |
| Toronto | 2,543,755 |
| Vancouver | 2,488,050 |
| Winnipeg | 2,229,480 |
| Montreal | 1,703,140 |
| Regina | 986,890 |
| Brandon | 564,006 |
| Hamilton | 539,005 |
| Edmonton | 504,420 |
| Saskatoon | 489,000 |
| Westmount | 326,500 |
| Moose Jaw | 296,550 |
| Victoria | 287,335 |
| Guelph | 244,770 |
| London | 195,470 |
| Fort William | 116,375 |
| Halifax | 111,450 |
| Prince Albert | 93,350 |
| Medicine Hat | 77,775 |
| Windsor | 69,790 |
| Brantford | 60,923 |
| Port Arthur | 42,550 |
| St. John, N. B. | 40,000 |
| Kingston | 20,470 |
| Stratford | 2,100 |

## A New Machine to be Put In

James Beveridge, president of the New Brunswick Pulp and Paper Company, Millerton, N.B., returned from England recently. Mr. Millerton has arranged to install another paper machine at the Millerton works which will double their output and give employment to about thirty more hands.

(continued from page 11)

ern European countries, including Russia, Sweden, and Norway, which have the advantage of shorter transport and cheap labor.

### Names of Leading Importers

Bryce, Junor & White, 28 Baldwin street, Bristol; Eastman, Phillips & Langlands, Elbroad street, Bristol; Charles Jennings & Co., 146 Pennywell Road, Bristol; Jones & Wainwright, Gefle Wharf, Cumberland Road, Bristol; Taylor & Low Bros., Canada Wharf, Cumberland Road, Bristol; May & Hassell, Baltic Wharf, Cumberland Road, Bristol; Heber Denty, Ltd., Merchants' Road, Hotwells, Bristol; J. S. Fry & Sons, Ltd., Union street, Bristol; John Lysaght, Ltd., St. Vincent's Works, Bristol.

### Omports of Wood Goods, 1910

| | | |
|---|---|---|
| Wood, hewn—Pit props | loads | 287 |
| Unenumerated | " | 3,807 |
| Sawn—Deals, boards, battens, scantlings, ends | " | 146,503 |
| Staves | " | 11,994 |
| Furniture | tons | 751 |
| Dye | " | 1,466 |
| Jarrah | loads | 1,239 |

### Excellent Facilities of Docks

The city docks provide excellent accommodation for the handling of timber cargoes, and at Portishead dock a new wharf 600 feet long and stacking ground of about 10 acres in extent have been provided. It is equipped with railway sidings and several quick working cranes for the special handling of wood goods.

LEADING VENEER OF UNITED STATES MANUFACTURERS
RECOMMENDED BY CANADIAN WOODWORKER

*National Veneer & Lumber Co.*

Manufacturers of

**Quartered Oak Veneer**

West Michigan Street and Belt Railroad,
INDIANAPOLIS, IND.

H. A. HAGEMAN, A. E. HAGEMAN,
Selling Representatives

**Cincinnati Veneer Company**

Sawed and Sliced Quartered Oak Veneers
Rotary Cut.
Poplar, Gum, Maple Cross-banding.
Oak and Walnut Faces and Backs.
Veneer Sawed Thin Lumber.
Sliced Poplar 1/8 to 5/16 in.

CINCINNATI, OHIO, U. S. A.

**Ohio Veneer Company**

Manufacturers of
**Foreign and Domestic Hardwood Lumber and Veneers**

Importers of
Mahogany and Foreign Woods

Office and Mills:
**2624 to 2634 Coleraine Ave.**
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**AN IDEAL ABRASIVE MATERIAL**

For use in connection with sand belts, sand blasts and sand wheels for grinding, rubbing and polishing of all kinds.
Our QUARTZ is 99% PURE SILICA
It is HARD, SHARP, ANGULAR and TRUE IN GRADE

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Wausau, Wisconsin
*SAMPLES AND QUOTATIONS ON REQUEST*

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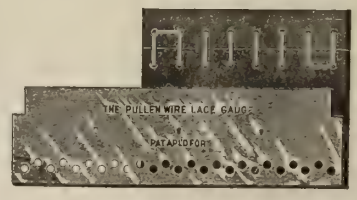
INDIVIDUAL
**GLUE HEATER**

Send your address and receive descriptive circular of Glue Heaters, Glue Cookers and Hot Boxes with prices.

**The Weatherly Co.**
Grand Rapids, Mich.

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**PULLEN Wire-Lacing GAUGE**

Ends all troubles with WIRE-LACED BELTS. Insures perfect spacing of lace holes, perfect joints, and smooth running, long wearing belts. Instantly adjusted to any size belt, on either side or edge, and the holes punched through the Gauge, quicker than without it. Pays for itself many times over in time and annoyance saved.

Mailed to any address on receipt of $1.00. Money back if you're not satisfied after trial.

**Leather Preserver Mfg. Co.,** 510 Munroe St. **Chicago, Ill.**

# Furniture and Veneers

## The Furniture Man and His Lumber

There is as much in the way a furniture man buys and uses his lumber as there is in the amount he pays for it; as much chance for economy and beneficial results as for waste and expense through negligence or ignorance.

Let us take the matter of oak lumber for example. A furniture man may buy several different grades of oak, some of the very highest class, come low grade, and some cull stock. He may frequently, for his smaller dimensions, cut up low grade and refine it to get clear stock in small pieces. Here is one of the places where the "know-how" counts for a good bit—that is, knowing how to get the most satisfactory results and the best stock for a given purpose.

To be specific, say a man has considerable low grade stock in which there are saps and culls. Some part of it has season checks, into which dirt has settled, making black looking streaks, and sometimes even the sap itself may be discolored, so that even though stock after being refined is clear of natural defects, it is still not up to class as compared with higher grade material.

The thing to do with stock of this kind is to use it for furniture which is to take on dark or heavy stains—stains that will obscure the dark streaks and splotches and harmonize with the general tone of the wood.

The flooring people are doing some of this now. They take the saps in parquetry and fancy flooring strips and use on them a dark stain filler, much darker than was used in former years. This filler obscures the slight sap stain and other discolorations and brings out a pleasing and rather harmonius tone, so that often to the casual observer a flooring made of saps is just as good in looks as one made of clear stock.

In furniture making there is a chance to do the same thing advantageously, and it should be somebody's business to see that discrimination in this matter is made so that saps and refined cuttings from low-grade stock, which of itself has not an attractive color tone, be put into such furniture that has dark stain. Of course, everyone knows that where practical, sap and knots and similar defects which interfere with the tone but not the service of the material, should be put into construction where it will not show. Even in this, though, there will be considerable stock which might not show up well where light finish is used, but would serve practically as well under dark stain as the better grade of more expensive lumber.

It is in stock for natural finish and for light stains that one should use the reddish colored wood, because then one gets the full, deep tone of the natural wood, and it requires only a slight amount of staining to bring harmony out of it. If in with this there are some clear cuttings even of high-grade, that are whitish in color tone, they had better go with the saps and the other stock that goes into the heavy stained and dark furniture.

In quartered oak, as everybody knows, there are many chances for discrimination in the matter of figure, for careful matching up and blending to get harmony of both grain and figure, because there are many kinds of quartered figures showing. Some are very artistic and striking pieces. Wavy stock is indicative of a curly grain generally, and to finish stock of this kind means a little extra work and more care. If run through the planers in the ordinary way, the knives will occasionally eat into the grain of the wood and, in finishing, the stain will gather in these spots and show rather rough. It means, in fact, a scraper job, but it is worth all the trouble, because if properly handled and carefully scraped and finished, so as to get a good finish, this wavy figure should prove as much more valuable than ordinary oak as the special figures in mahogany are more valuable than the plain.

In different sections of the country manufacturers of furniture follow different methods in regard to their lumber supply. Generally speaking, those who have to ship over long distances have more of their stock cut to small dimensions at the mills so as to save the freight on the trimmings, whereas those that are nearer prefer to do their own refining anad to throw away their cut-outs at the factory. So they buy more of it in the form of lumber.

Leaving aside for a minute the part freight plays in the matter, one may urge that for the highest grade stock it is best for the furniture manufacturer to buy as much of it as practical cut up into specific dimensions. The main reason for this is that it generally dries out in better shape; there are fewer unsightly season checks, and, therefore, less likely to be dark streaks caused by checks filling with soot and dirt; and there will be better seasoning generally and the stock should work up nicely—that is, provided it is refined while it is green at the mill. To refine it after the stock is dry at the mill is no improvement over refining it in the factory in this manner.

One thing that furniture manufacturers and the lumbermen catering to them, also, may well watch for the next year is sap gum. There is promise of a great call for white effects in furniture, because of the favor shown to satinwood. The sap of white gum will not make an imitation satinwood, perhaps, but when carefully selected and properly finished it will make a beautiful

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## Red Gum, Its Uses and Methods of Drying to Prevent Warping

With the using-up of our best furniture and architectural timber other woods have come to the front. Just now much is being said about red gum. Much can be said for its beauty and other desirable qualities. It is sometimes called satin walnut, but it is claimed to be superior to maple in that while maple, in order to preserve uniformity of color, must all be sap growth, rendering it liable to dry rot or decay; red gum heart growth has no sap, yet has uniformity of color. Nor is it subject to dry rot.

In color red gum is a rich reddish-brown, much like the color of cherry, with the growth or figure of mahogany; it is a close-grained wood and takes

a high polish with little work. It does not sliver and it becomes very hard when perfectly dry. Its possibilities in the hands of the hardwood finisher are great. It is at its best done in the natural color but it may be stained to imitate cherry or mahogany, which woods can be thus matched perfectly.

Red gum comes from the south, mostly from the bottom lands of Louisiana and adjacent parts.

Red gum warps like Sycamore, but this defect has been overcome by a system of drying. First the lumber is passed through a solution of bicarbonate of soda and water heated by steam up to as high as 200 degrees. Then it is striped, piled in the open until dried, but receives a further drying in the kiln.

In Canada this wood has long been used in furniture and picture frame making and as it takes stains and varnish well, and has some good furniture, it has become popular here.

We remember when oak superseded walnut as the latter wood began to grow scarce. Now we see red gum taking the place of the oaks in the same manner. Red gum is being used in car and house work as well as in furniture-making, and with satisfaction it seems. As oak can be made to resist or fit in any cold scheme, so red gum is also serviceable, and as it has a pleasing grain or figuring the finish finds no difficulty at att in doing good work with it.

The filling and varnishing brings out the natural beauty of color and figure surprisingly, and in addition to its fine self-color it may, as has been previously stated, be stained and still look beautiful. The following stains may be used in connection with red gum: Flemish brown, forest green, mission and Dutch brown. Dark mahogany stains produce a very handsome effect. This stain is not dense enough to hide the natural markings of the wood, and hence we get the beautiful mahogany color together with the fine markings. But the other stains I have named will give equally satisfactory finish.

Red gum contains neither sap nor acid, hence does not act upon the finish as some woods do, a point worth considering. Practically it has no grain, hence will not silver like cypress or pine; it is simply a good, solid, and durable wood that will meet many wants in the woodworking world.

### Staining Bad Wood and Matching

If the wood is in a bad condition, as from stains, a deep and permanent stain may be given by first treating the wood with a solution made from equal parts of manganate of soda and Epsom salts in twenty times their weight in water. Boil to 144 degrees Fahr. Apply this solution hot, and brush it well. As soon as this is dry, the wood may be stained.

Even where the wood has been planed and made quite smooth, the stain may not work evenly. In that case it is best to use a quite dark stain, say black japan thinned with turpentine which will give a rich brown. Other effects may be had by mixing transparent pigment with black japan and thinning it down to a stain.

## The Gift of Matching Veneer Should be Encouraged

Matching up and putting together face veneer in such manner as to get the most pleasing results without wasting a world of time, seems to be a natural gift. In other words, some people are born for the work and others are not. Any one can, by patience, study and practise, become reasonably proficient at it in time, but talks with people using lots of fine face veneer bring to light the idea that there are some peculiarly gifted at it who become expert while they are young. Others, when they become widely informed on the subject and very skillful, may be even a little slow at work and in comprehending possibilities after they have been at it for years and grown to middle age. In other words, some people can do two or three times as much in matching up face veneer, and do it better, than others who seemingly take mort pains. That is where the knack or natural gift comes in. It is, therefore, a trait we should watch for, and, when recognized, develop it.

There will be a demand for more and more of this all the time in the future, and men peculiarly gifted in combining veneer so as to get pleasing effects when doing it rapidly, should be able to command good salaries, for they are undoubtedly needed everywhere that face veneer is used. It is likely that by and by we will develop a recognized trade of veneer matching just as we have recognized callings in connection with different machines and other kinds of work. And in developing this trade, if we can get the majority of those into it who have natural traits for the work, it will be a good thing, not only for them individually, but for the general veneer-using trade. It will help out in a line in which the trade has been needing help for a long time—help avoid misfits and glaring contrasts, and insure the artistic matching and putting together of veneered work of all kinds.

## The Furniture Business in Prosperous Condition

The furniture business in Canada is very good at this time, and retail dealers report good sales in all lines with a slightly better demand for the high grades.

Mission furniture is still a strong seller, the style of finish most called for being the fumed oak.

There is also a good trade being done in Circassian walnut furniture, and one of the largest dealers in Canada informs us that he is disposing of large quantities of mahogany furniture.

## Fine Veneer vs. Costly Veneer

In the minds of the public, the term "fine veneer" and that of "costly veneer" are often confused. In reality they mean entirely different things, even though much of the expensive veneer is cut fine. The term fineness is often used in its commonly accepted meaning in the trade—of thinness. The finest cutting on veneer, that is, the thinnest cutting, is done on Spanish cedar cut for making veneered cigar box lumber. Here the cutting is worked down to such a fine point that it takes a hundred sheets of veneer to make an inch in thickness. This is one interpretation, and probably the most generally accepted meaning in the veneer trade, of fineness in cutting veneer.

In the public mind fineness generally means fine quality, and in that sense it has a direct connection with cost, or the most expensive veneer, which is also generally cut thin.

The most expensive veneer on the market to-day is that made from Circassian walnut. The average cost of the raw material for this is about $320 a thousand, whereas the average cost for mahogany is only

about $100. In other words, the average cost of Circassian walnut is practically three times that of mahogany. Special figures in mahogany bring enormous sume, but this is also true of Circassian walnut.

Another wood which is more expensive than mahogany is satinwood, which, the authorities in the furniture world say, is coming into wide favor and has every promise of being used extensively in very expensive furniture in the near future. The census reports on satinwood show that a thousand feet of raw material out of which the veneer is made costs an average of $200. However, it is stated by authorities that the highest grades of satinwood really cost about four times as much as mahogany and form the most expensive of all our cabinet woods. On the face of the census reports, however, satinwood does not appear to be as clostly as Circassian walnut, but this is due to the fact that prices may vary from time to time and, besides, there are different grades and certain fine qualities which bring more than others, so that the taking of these general average prices may not rightly fix the comparative value of any two woods for a given purpose.

Two other costly woods imported are ebony and rosewood, and there is still another one, imported white (English) oak, which is rated above mahogany. Ebony follows satinwood in point of cost, an average of which according to the census report, is $180 per thousand feet of logs. The average value of rosewood is $140, imported oak $100, and Spanish cedar $92.19.

## A Gigantic Elm

An elm tree was recently cut in England, the contents of which were over 1,000 cubic feet. The butt and section was thirteen feet long by twenty-seven feet circumference, tape over bark—not over the growths but between them. The second section was thirteen feet long by twenty-three feet circumference, tape over the bark. There was a third section, which was very large, and there were also several very large tops. The butt section was not quite sound. The contents of this piece alone was over 400 cubic feet. It had to be hauled to the storage yard by a traction engine.

## "Hurry-up" Babbitting — a Wrinkle

Did you ever have one of those hurry-up jobs of babbitting a solid box bearing? If so, how did you come out in the finish? Will venture to say much time was spent removing the shaft, then another hour spent in scarping babbit to a fit. The writer, having been through such experiences, by no means of the most pleasant kind, finally took a tumble to a way which works well, and, if properly done, will save much time as well as perhaps a lot of cuss words and bad temper.

Take shaft to be babbitted, if you have the time, warm it slightly, then taking a piece of common hard soap, rub all over bearing, thus leaving a coating of soap on shaft about the thickness of brown paper. Now, if you have a little graphite around handy apply a nice, smooth surface over the soap. Insert shaft in box and prepare clay for pouring. Now, with oilholes plugged with pine plugs, oil up, and you are ready to go ahead—and a fine fit, too, if properly done.

Now for a little "wrinkle" we are using on our double surfacing Whitney planer (and by the way friends, both knives cut on this machine), in the way of removing gum and pitch, or rather making it possible for same to gather on feed rolls. We took four balls of candlewicking and made this into a four-strand or round braid, braiding it with a heavy wire in centre, which was formed into a loop at the ends, for the purpose of fastening to machine, over feed rolls, wick or braid resting on top of rolls entire length. We supplied both rolls in this manner. Applying a little dipping or paraffine oil from time to time on wicks will end all trouble in gum or pitch colltcting on rolls. It also lubricates the wide pressurebar over lower cylinder, making planer feed freely and easily. And we don't use this pressurebar to scrape knife marks out, either.

G.H. CHAVEY.

## Entire Island a Mass of Ruins

Calumet, Que., July 13.—To-day the entire Island of Calumet is a mass of ruins. The large lumber mills formerly owned by the G. H. Perley Co. and recently amalgamated with the Riordon Paper Co., of Hawkesbury, across the river, was razed to the ground by a fire which broke out in the main saw mill about noon yesterday. The loss is $200,000, and covered by insurance. The large mill, comprising a saw mill, lath, clapboard and shingle mills, is completely destroyed. Offices, warehouses, barns, sheds, stables, a school house built by the company and rented to employees, 8,000,000 feet of sawed lumber, a season's sawing of shingles and an enormous quantity of clapboards and lath, all are gone. Not a vestige of the large plant that covered the entire Island of Calumet, half a mile in length, and which gave employment to upwards of 225 men during the past 23 years, remains.

### Cause of Fire Unknown

The cause of the fire is unknown. It started in the main mill, under the band saw, it is believed by the friction of the big belt.

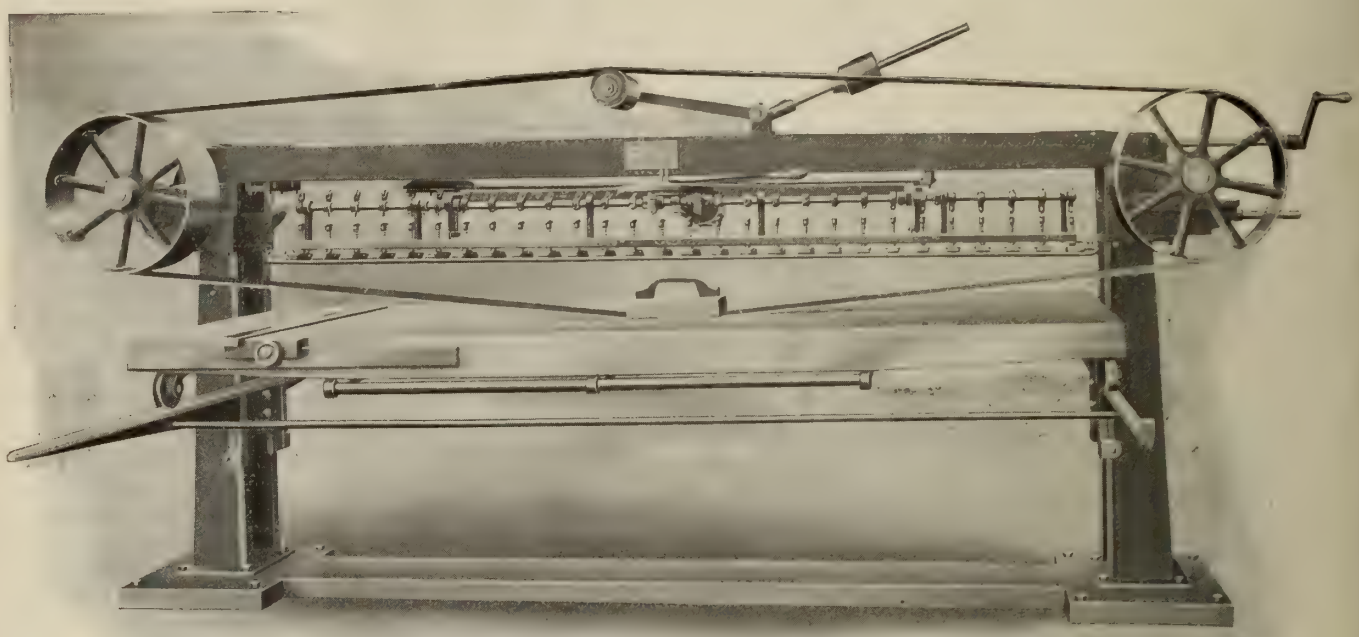
### Will Be Rebuilt

Mr. J. B. White, manager of the company's saw mills in Quebec, stated it was very probable that the plant would be rebuilt. Most of the men he said would be engaged in rebuilding and in the company's other mills and lumber camps. Mr. Carl Riordon, managing director of the sulphite mills at Hawkesburg, confirmed the statement. Both parties stated that the loss was practically covered by insurance. The plant was originally established by Bapties and the Ottawa Lumber Company, in 1887. In 1899 the G. H. Perley Co., of Ottawa, bought it and in 1909 amalgamated with the Riordon Paper Co., with head office at Montreal. Chas. Riordon is president, G. H. Perley, M.P., vice-president, and Carl Riordon, managing director of the company. They have several other mills.

Fire was discovered in the engine room of Brown & Company's planing mill at St. Mary's, Ont., and did considerable damage before being got under control. The estimated loss by fire and water is over one thousand dollars. The origin of the fire is unknown. The loss is partially covered by insurance.

## When you Think of Sanding, Think of the Schimmel

# The Schimmel Spiral Belt Sander



## The Standard Belt Sander of the World

(Cut shows Spiral Contact Device pushed back and sand belt clear for the hand block.)

The Schimmel is installed in over 200 of the leading furniture, piano, interior finish, fixture, sash and door and allied wood working shops of the United States, Canada and Foreign Countries. It is radically different and superior to the hand block and mechanical hand block device. Owing to the flexible nature of the contact pad and to the absolute control which the operator has over the cutting point of the sand belt it is the only machine capable of perfect results at high speed. Consequently the most economical belt sander not only in time and labor but also in materials and sand belts.

The Schimmel Spiral Contact Device is the only method of applying the sand belt to the surface which permits of high speed in operation and produces a perfect surface. Ask the factory that is operating them.

Tell us your sanding needs. We manufacture Belt Sanders for every purpose. Prices from $100.00 to $550.00.

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## Schimmel-Reid & Company, Faribault, Minn., U.S.A.

**Manufacturers of Sanding Machinery**

# Boxes and Cooperage

## Noon-Hour Talks at the Modern Box Factory

"Gee," said the Imp, as he brought in some hot soup from the saloon across the street for Buck and Smoot, soup for which he had a record of getting across the street after and back again in half the time it took him during work hours to go from one department of the factory to the other. In fact, his quick action in this work at the sound of the noon-day whistle had frequently caused Mr. Thornly to remark that he ought to be in the fire department. "Gee, old Inksey must be diggin' a hole to crawl in, and fixin' it so he can pull the hole in after him. He's building something just outside the printing room door that looks like a Kansas cyclone cellar."

"You're unnecessarily excited, Imp," was Smoot's comment. "It's merely his new storage room for printing plates and dies. There was a die man around here the other day who sold the house a few dies and gave Inksey and Mr. Thornly a whole lot of advice about how to take care of them. I move, Buck, that we go over and see about it as soon as we finish eating."

Inksey, as he was called, had charge of the box printing, and it was from that fact that he got his name; his real name was quite different, but it doesn't matter here, for everybody called him Inksey so much that he would hardly answer to any other name, and he started to sign his name even when he went to register at his eating place, he had become so accustomed to it. He had, since the installing of the new printer, been a busy man, for the new machine suggested new ideas and many ways of doing things that called for all sorts of changes in methods and appliances. And it was the carrying out of one of these ideas in the way of building a sort of cellar outside the building proper, in which to store his dies, that had attracted the Imp's attention. As a consequence, he was barely through eating his lunch when Buck and Smoot, with the Imp following in their wake, came strolling up.

"Well, Inksey," was Buck's greeting, "how does the new printer work?"

"It's a dandy, and I've got a pointer from using it that I didn' have before. We all have much of a to-do about register, but now I've come to the conclusion that there are other points about a printer that are as important as the register. For instance, ink spreading. What good is it to have a perfect register if your machine doesn't ink properly? And that's what this machine does; it inks better than I ever dreamed a machine could, so that all its work is fine, and what I get as a lesson from this is that the inking is the business end of a printer. The other is simple compared to it.

Whatever else he might have said about inking was cut short by Smoot putting in with: "You've learned to build cellers, for example?"

"Yes, I had several lessons pounded into me the other day when the die man was around, and that's only one of them, but it's one that I am now having some doubts about. He said that we should have a special place to keep the dies, a place free from dust and dirt, and that as a safeguard in case of fire it was best to have them in a vault of cellar. Also, as the plates and the benzine I use to clean them with are more or less liable to start a fire some time he thought it would reduce the hazard enough to make it worth while for me to have a sort of cellar outside the building to put them away in, where they would be safe in case the factory should burn.

"Now, while the idea is good in the main, it's one of those fine theories that may cost so much extra work as to not be worth while. I have been keeping the plates in a locker right here in the printing room, where they were easy and handy to get to, and, while they did accumulate more or less dust, and there was some danger of fire, I have a feeling right now that I'll get awful tired of having to go out into a dark cellar every time I want to get a die or put one away. Maybe I will get used to it in time, but right now it looks to me like if we want to take that much pains about our dies the thing to do would be to build a brick vault right here in one corner of the room, something that would cost more, but would be both safe and convenient.

"But the die man gave me a pointer about cleaning dies that I think is worth something, and it's practical, too. We have been using coal oil instead of benzine, because there is less danger of fire from it, and now he has shown me how to cut out that danger altogether. He says take lye, the concentrated kind that comes in balls, for cleaning the dies, and I can get them clean just as well and have no danger of fire whatever. If he had just stopped at that, now, and not sprung this other idea of a cellar, I would have been happy, while as it is I have some doubts way down in one corner of my mind. While he was on the subject of cleaning dies he also rubbed in the point of keeping them clean. He says that a printer that will put away a die without first cleaning it doesn't deserve to hold his job, for it is just as easy to clean it when it first comes off the machine. In fact, it's easier, for if you leave them till you want to use them again before cleaning, the ink dries on and is more difficult to remove, and then it corrodes and destroys the fact of the plates. He preached me quite a sermon on the importance of cleanliness, coming down on it hard that I am glad he doesn't know about even those few times I have been in a rush and felt my dies over without cleaning.

"There was another point he explained to me about printing that I ought to have known, but didn't and that was that there are summer rollers and winter rollers for ink-spreading. I know that I've had trouble before when the weather would get right cold, but I have been such a dummy on the printer's art that it never occurred to me that the temperature had a lot to do with the consistency of an ink roller—that they have softer ones for winter use and harder ones for summer, so as to provide for the difference of temperature. There may be some other box printers that don't know this, but you can just bet I'll not forget it now. But one point we got into an argument on was in that of routed and cast dies. His

specialty is routed dies, and, naturally, he's always arguing that way. He says, for instance, that ordinarily one routed die is good for two million impressions, which I will admit is much more than you can get with a cast die. They get this advantage in the routed die by being able to cut them deeper than they can ordinary be cast. But, on the other hand, the cast die is cheaper; and, besides, one of our cast die men says they have the advantage in that they can harden the brass, whereas the routed die man must leave it soft to work it, and in that way the cast die will wear off more slowly than the routed one. However, the one point made by this man of routed dies that is hard to get around is that he gets a more perfect and clean-cut letter in the routed die than is offered in the cast die, and this point has a whole lot of weight with me now, since I've got so taken up with nice printing. Then he showed me how to get the 'burnt' effect that is such a favorite with the people who buy whiskey and beer boxes, which is done by using brown ink and screwing up the press so tight that it will sink the die into the wood.

"There is one thing yet to learn about box printing, though, that neither he nor the press man could tell me, for they haven't learned it themselves yet, and that is to fit a printing machine so that it will take care of the uneven thickness in the stock to be printed. I don't mean a machine that will automatically adjust itself to any thickness of lumber, but you know, and I know, that in box stock that is presumably the same thickness, there are variations from only a hair to 1-16 inch. Sometimes one piece is a little thinner than another, sometimes it is merely thin on one side, and then again it may be a little thin at one end. These variations are of no commercial importance, and would hardly be noticed with the naked eye under ordinary conditions, but I see them every day here at the printer. Take a piece that is thin on one side, for example, and the impression is pale there unless I screw the press up till it makes an indention on the other side, and other one makes it look ugly. All I can do is strike a general average, and then here'll come a thick board to get the die washed into it, while a thin one will follow in a minute or two and get poorly printed. Now, of course, I could come come quick to Smoot here and say that he wasn't doing his duty with the planers, but I know there are limitations to the perfection of planer practice in the box factory. They may use a micrometer in measuring the knives that go on planers, but it is out of the question to apply that measurement to the finished lumber, for if they did the cost for planing would amount up at a lively rate. I think, in fact, that we've got as evenly planed stock as can be found in the country anywhere, but there is enough variation in it to make a man swear occasionally when he wants to turn out the finest printing going.

"What we want, the lesson I want the builders of printing presses to learn is, how to make a box board printer that will automatically adjust itself to these little variations in lumber. I believe it can be done, but it hasn't been so far. They've got them so they'll register well and spread ink as nicely as one could wish, but there is one feature that is needed to make life easier for the man that runs the printer."

"Well," said Smoot, as he and Buck turned to go back, "I am exceedingly grateful, Inksey, that you didn't take a notion to make the planer learn the lesson of producing absolutely perfect stock in thickness for it that case I could see myself in for a warm session with Mr. Thornly that might drive me back to the woods."

"Oh, as to that," came the parting shot, "I am not so sure but what you will get a little shaking up on this point yet; it might help matters some, you know."

## Undressed Staves

That undressed staves are receiving the attention of Canadian exporters is evidenced by the fact that in 1909 some 973,000 staves were shipped to Australia to the value of £4,760, and this trade has only just been entered into. The United States supplied 1,114,169 staves, to the value of $10,845. The total imports were 2,390,888 staves, valued at £18,178.

## Error in Costs

Even box men are inconsistent.

One of the biggest manufacturers in the country has what is regarded as a splendidly organized cost department. He pays real experts corresponding salaries to find out what each process of manufacture is costing them, and before he sells a box he has got to know that it will produce a profit, after all the material, labor and overhead expense are all figured in. In other words, the factory is pretty nearly a model.

Usually, however, there is a fly in the ideal ointment, and this is it in the case under consideration. After finding out that it costs him about one-eighth of a cent to make each impression when he prints a box, the manufacturer turns around and gives the service to the purchaser of the boxes "free gratis for nothing."

This is a monumental error which the box trade has been perpetuating for many years, and until there is united action on the subject it is likely that the condition will be continued. Giving things to the consumer is not unusual, and if the competitor of one manufacturer does it, he falls in line and does the same thing, thus compelling others around him to do so as well.

"We can't help ourselves," explained the manager of the factory referred to above. "If we tried to charge the consumers of boxes for printing them, when they furnish the dies, they'd tell us we were crazy. We simply give them the service, although it is costing us money and amounts to a big pile in the course of a year."

### Box Printing Costs Good Money

"However," he went on, "I imagine that the cost of printing is figured into the general factory expense, so that the box consumer is paying for it anyhow. If this is the case, though, the man who doesn't get any printing in paying for service that is going to somebody else, and that, of course, isn't fair. We ought to charge the man with the printed box for this service, and we ought not to charge the man who gets his packages plain."

The fact that everybody realizes that it costs money to print boxes makes it a matter for wonderment that such a service is performed for nothing, any more than that the cost of the nails which go into the package is eliminated when the bill is made up. How the practice which is indulged in by some manufacturers, of giving consumers the dies which the used in making the impressions, can be tolerated, then, is something which is beyond finding out.

"Yes, every once in a while we furnish the die which is used in printing a man's box," admitted a manufacturer. He said it rather sheepishly, too, for he knew that this was one of the things that he had no defense for. "We don't like to do it," he continued, "because the request is usually made after we have got the contract, and the cost of the die hasn't been figured into the proposition. We can't afford to offend good customers, however, and sometimes we agree to furnish the dies rather than lose the favor of important consumers. But it's a bad practice and ought to be stopped."

It seems that a little diplomacy would easily work results in this connection. It is bad policy from the standpoint of the consumer, as well as the box man, to have the latter buy the dies. In the first place, they remain the property of the box factory, and if the consumer ever changes box manufacturers he has to go through the whole thing over again. If he had purchased the dies originally, they would belong to him and he would be able to transfer them whenever he had his packages made in another factory. When this happens, if the dies do not belong to the consumer they remain just so much junk in the hands of the box man.

### Printed Boxes as Advertisements

One box factory, at the request of the consumer of some importance, even provided a different die and different printing for each of the four sides of the box, so as to advertise the different lines handled by the manufacturer of the commodity in the package. No extra charge was made for this; and to show the splendid appreciation on the part of the consumer, he changed factories at the next opportunity!

One of the most important considerations, however, is that the printing of a box is now assuming considerable importance from an advertising standponn. The consumer should be made to realize that the package has a distinct and important advertising value and that the die should be carefully designed and made with this in view. Occasional changes are also worth while, and these could not in reason be expected of the box man. ,In other words, in view of the great benefit which the consumer is to receive from the printing, he should be glad to make the necessary investment of money, time and care to see that he gets the very best results possible from the die.

As a matter of fact, if the box manufacturer were to anticipate any calls for free service in the way of printing or furnishing dies by first emphasizing the possibilities of the box as an advertising medium, and then called attention to his facilities for printing, he could add a charge for the work which would not only not be objected to, but would be considered very reasonable. If the consumer were made to understand that what he has been accepting as a mere perquisite, worthy of no special attention or consideration, is a valuable thing, he will be willing to pay for it. He has simply not understood its value and has not appreciated the extent of the favor which has been conferred upon him by the box manufacturer.

If the latter is determined to continue to give free printing service, he should let the consumer know that it is costing money and that he is being done an exceptional service. If the unpaid-for work were properly appreciated and could be regarded as an investment which would result in a better feeling on the part of the consumer, the utter waste of performing it would be redeemed. But that is not the case.

## Badly in Need of a Lumber Mill

Haileybury.—Wanted, a millionaire to establish a big saw mill on Lake Temiskaming!

At the banquet given to the members of the Toronto Board of Trade in Haileybury, Mr. George Rochester, an admitted authority on the lumber industry in Temiskaming, gave some facts and figures sufficiently startling as to the scope and size of the operation on waters and limits tributary to Lake Temiskaming. In the last fifteen years the big Ottawa lumbermen driving in Temiskaming waters have spent a million dollars a year in their operations on the Ontario side alone. And every log that the lumber-jacks cut and the river gangs convey out goes to Ottawa, Pembroke, Arnprior or Breaside Mills, the very large percentage to Ottawa.

This season there has been taken out of the Temiskaming 2,500,000 logs by J. R. Booth, Gillies Bros. and the other big lumbermen who own limits in the 10,000 square miles tributary to Lake Temiskaming. A big mill represents an investment of many thousands of dollars, and though it cost two dollars a thousand to drive them down the Ottawa and a loss of ten per cent. during the two years they are on the way, it does not seem probable that the established traders will put a mill on Lake Temiskaming while two-thirds of their cut is lower down the Ottawa.

The little man has no chance to compete in any export trade; the most he can do is to cater to purely local requirements. There are sixty-five mills in northern Ontario to-day, but not one of them is making progress commensurate with the growth of the country. It's a big man's game, and only a big man can play it. To make a profit a capitalist would have to erect a sawmill with a capacity of twenty-five million feet a year, and he would have to buy limits for which about a thousand dollars a mile is now being asked. To depend on the settler would be altogether too haphazard unless he had a reserve to fall back upon, and unless therefore the initial outlay in limits would be considerable.

What profits, then, would there be in the enterprise, and how could a newcomer hope to compete with those already established in the industry? At the present time it costs two dollars a thousand to get the logs to the Ottawa mills and there is a ten per cent. loss on the route. On the present schedule of rates submitted by the T. & N. O. Railway it would cost $3.60 per thousand to take the sawn lumber down to the consumer.

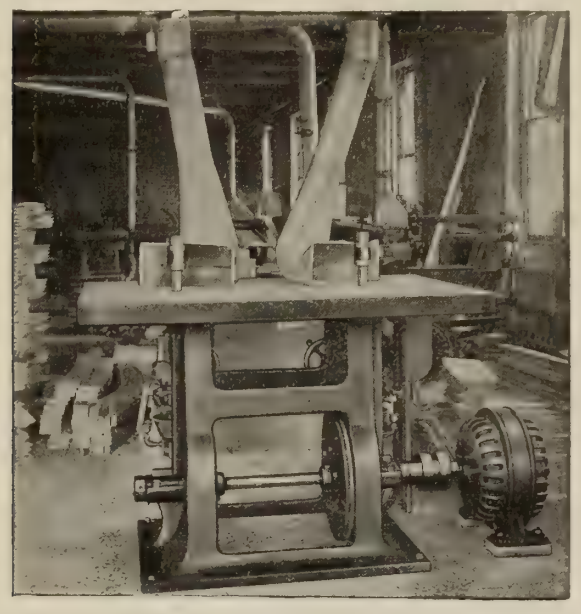
To-day in the Temiskaming district on the Quebec side there are thousands of miles of good timber land standing idle for the want of capital. It is, of course, only a question of time until the lumber will be taken out, since its value grows by leaps and bounds, and sticks that years ago would have been allowed to rot or be burnt are now eagerly sought. The question is, will these logs continue to be driven down the Ottawa with the ten per cent. of loss and two years' delay on the road, or will the north country obtain the benefit of her own natural resources and manufacture her own lumber? The local demand is growing with great rapidity, but for many years it will not be of sufficient volume to attract or justify any great outlay of capital, but on the face of it an enormous waste can be saved by manufacturing right on the spot. Now, where is the millionaire?

# Direct Motor Drive for the Machine

## Motor Driven Woodworking Machines

We are showing on this page two cuts illustrating direct motor drive.

No. 1 shows a 60-in. band re-saw. The average load with 28-in. poplar 15-ft. per min. is 40 h.p. 18-in. poplar at 48 ft. per min. 56 h.p. The R,P.M. of saw pulley is 515.



Two Spindle Shaper coupled to 3 h.p. Induction Motor.

The efficiency of motor drive for this class of heavy band-saw has been fully demonstrated.

No. 2 illustrates a 2-spindle shaper drive by a 3-h.p. induction motor, type C.C.L., 1700 R.P.M.

The motor it will be noticed, is connected to the counter shaft which is connected to the bevel friction wheels for driving the spindles. The absence of belting is a great consideration. As is also the fact that steady speed and power is maintained. No one better than the shaper hand knows what this means, as an aid to making a good job, and furthermore, the danger of accidents is much reduced.

Any of our readers who have had experience—good, bad or indifferent, with motor driven woodworking machinery, would confer a favor upon up by relating to our other readers through these columns, their opinions and experiences of this mode of drive.

The cuts illustrating this article are shown by courtesy of the Canadian Westinghouse Company, Limited.

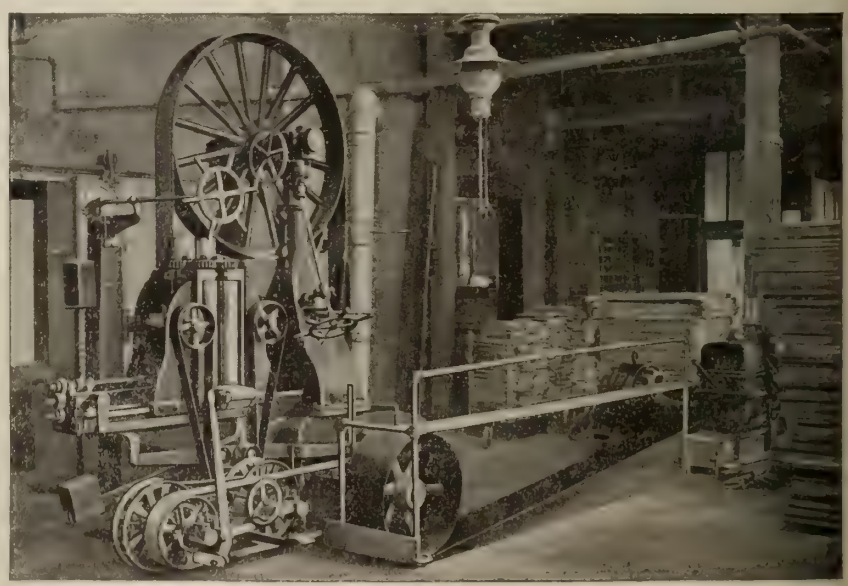
## Why is Europe in Advance of America in Pioneer Inventions?

"Everybody is familiar with the claim that American inventors, engineers and manufacturers lead the world," says Engineering News. "A vast amount of boasting has been done about American ingenuity and originality and enterprise. If this claim were well founded, it would be indeed matter for national pride; and a quarter of a century or more ago such a claim had a good deal to justify it. There are a number of fields of invention and manufacture in which the pioneer work was done by Americans and in which the statistics of exports still testify to our high standing.

"But," continues the Engineering News, "when one views the whole field of engineering and industry and particularly the progress of the past twenty-five years, it is rather humiliating to confess that instead of being in the lead, the United States are lagging far in the rear.

"Take for example the advances made in iron and steel metallurgy during the past twenty-five years. Some original contributions have been made to the art by American inventors in that time, of course; but the great advances which have been made have almost all originated abroad. We are to-day something like five years behind Germany in iron and steel metallurgy, and such innovations as are being introduced by our iron and steel manufacturers are most of them merely following the lead set by foreigners years ago.

"We do not believe this is because American engineers are any less ingenious or original than those of Europe, though they may indeed be deficient in training and scientific education compared with those of Germany. We believe the main cause is the wholesale consolidation which has taken place in American industry. A huge organization is too clumsy to take



60 Inch Band Resaw Coupled to 40 H. P. Induction Motor.

up the development of an original idea. With the market closely controlled and profits assured by following standard methods, those who control our trusts do not want the bother of developing anything new."

The Engineering News states that it instances metallurgy only by way of illustration. There are plenty of other fields of industry where exactly the same condition exists. Americans are building the same machines and using the same methods as a dozen years ago, and the real advances in the art are being made by European inventors and manufacturers.

"Those 'effete nations of Europe' actually appear to take a certain pride in doing new things that are worth while. Original work by engineers and designers is encouraged and rewarded. In some cases American manufacturers take up these foreign inventions after they have been developed on the other side of the water, and after four or five years the new improvement begins to be introduced here. In other cases a dozen years or more elapse before any American has enterprise enough to introduce here what has been proved to be excellent on the other side of the ocean.

"It would be easy to cite fifty or a hundred important inventions of the past quarter century which have originated in Europe.

"A notable illustration of this lack of originality in present-day American industry is the development of the internal combustion engine. There is no doubt that the application of this type of prime mover to a wide range of uses has been the most important development in mechanical engineering of the past twenty-five years; but the original work in this field has almost all been done abroad. We have merely copied the European inventions. Of course, there are some few meritorious details of design which have been worked out by Americans, but nearly all the really notable advances in the field of gas and oil engines from the beginning have been made in Europe."

## Timber Regulations in British Columbia

Crown grant or patent gives absolute ownership in fee simple to land and timber thereon in the Province of British Columbia, and on timber taken from land covered by deeds issued prior to April 7, 1887. there is a tax of $1 to $4 per thousand feet board measure, which is refunded if the logs are manufactured into lumber in Canada. On all timber cut on deeded crown-grant lands issued since April 7, 1887, and prior to March 12, 1906, there is a royalty of fifty cents per thousand feet board measure and no tax. Both these classes are exportable.

On timber cut from crown lands or from crown-granted lands deeded since March 12, 1906, there is a royalty of fifty cents per thousand feet board measure, but the logs are not exportable until manufactured.

prior to 1905 the provincial government, which controls all the timber of British Columbia outside of the Canadian Pacific Railway belt, issued leases covering timberlands, which gave the holder of such leases the right to all the timber on the lands covered by the lease for a period of twenty-one years, with ground rent of ten cents per acre annually and fifty cents per thousand feet stumpage when cut. These leases can be surrendered at any time and renewed for another twenty-one years.

The provincial government, up to 1908, issued special provincial licenses for twenty-one years from date of issue, which gave the holder the right to all the timber on the land for twenty-one years at the annual ground rent of $1.40 per section of 640 acres and fifty cents per thousand feet stumpage when cut. East of Cascade Range the annual charge was $115 per section of 640 acres and the stumpage charge sixty cents per thousand feet when cut. Beginning with 1908, all provincial timber was reserved by the government indefinitely and now no timber can be procured in British Columbia from either the Dominion or the provincial government.

## Chats with the Trade

### H. J. Hall & Son, Berlin, Ont.

Work is being rushed out in this planing mill as fast as is consistent with high-class quality of product. This firm was established in 1878, and make a specialty of sash, doors and blinds, and interior trim in the hardwoods, etc. They also are dealers in lumber, laths and shingles.

### Jacob Kaufman, Berlin, Ont.

We had the pleasure of going through this plant and find that although an addition was made to the mill but a short time ago, and new machinery installed, the firm are kept busy in keeping up with the work of supplying their numerous customers. However, they have a good system and plenty of space, so are able to work and handle large quantities of material from day to day, consisting of all the manufactured work required for building purposes, ranging from the heavy bill stuff to the finest trim.

### Woodstock, Ont.

All manufacturers engaged in the woodworking industries in Woodstock are enjoying good trade conditions and as was noted in last month's issue the Bain Wagon Company are taking all the necessary steps to advance building operations on the extensions to their present immense plant.

### George McLagan, Stratford, Ont.

The Geo. McLagan furniture people are very busy. They make all kinds of furniture of the high grade variety such as parlor cabinets, stands, in every known style and finish.

### Neilson Mill and Lumber Company, Stratford, Ont.

While in Stratford we had the pleasure of chatting with Mr. Neilson, of the Neilson Mill and Lumber Company. An idea of business conditions with him was furnished by the fact that when we called we found Mr. Neilson busy at the machines, owing to his being a little short of men at that time. This firm are engaged in the manufacture of sash, doors, lumber, laths and shingles, etc., and make a specialty of interior trim and stair work.

### Ruston & Company, Stratford, Ont.

Mr. Ireland, the genial superintendent of Ruston & Company, Stratford, informed us that they are enjoying good business, and at the present time are building two offices for the Bell Telephone Company of Canada, one in Windsor, the other in Owen Sound. We saw a fine line of veneered work being prepared

for these buildings as well as other lines required for building construction. This firm also do a good local business.

### Stratford Manufacturing Company
### Stratford, Ont.

The Stratford Manufacturing Company are doubling business over last year. They have many special machines for making ladders and lawn and verandah furniture. This is the firm that manufacture the gliding settees and park seats. It is said this company are the largest manufacturers of ladders in Canada, also it is claimed that they carry a very great variety of styles of same. Their business extends from coast to coast.

## Lost—A Hundred Pounds

Years ago when the electric telegraph was a new idea and a mystery to the masses, there came trouble one Saturday night in the Bank of England. The business of the day had closed, and the balance was not right. There was a deficit of just one hundred pounds. It was not the money, but the error, that must be found. For the officials and clerks there could be no sleep until the mystery had been cleared up. All that night, and all Sunday a force of men were busy. The money was surely gone from the vaults, but no one could discover whence.

On the following morning a clerk suggested that the mistake might have occurred in packing for the West Indies, some boxes of specie that had been sent to Southampton for shipment. His chief acted on the suggestion. Hence was an opportunity to test the powers of the telegraph—lightning against steam, and steam with forty-eight hours the start. Very soon the telegraph asked a man in Southhampton, "Has the ship Mercator sailed?"

The answer came back: "Just weighing anchor."

"Stop her in the Queen's name," flashed back the telegraph. "She is stopped," was returned.

"Have on deck certain boxes (marks given-, weigh them carefully and let me know the result," telegraphed the chief.

This order was obeyed, and one box was found to be somewhat about one pound and ten ounces heavier that its mates—just the weight of the missing sovereigns. "All right. Let the ship go!" was the next order.

The West Indies house was debited with the one hundred pounds, and the Bank of England was at peace again.

## New Lumber Company

Cranbrook, B.C., people have organized the Yahk Lumber Company, Ald. S. Taylor being president and W. G. Morton, secretary. Others interested are V. H. Baker, J. R. McKnabb, James Taylor and Alex. Taylor.

Two million feet of Oregon fir will be used for the decks alone of the new German trans-Atlantic liner "Europa," soon to be built. For months this lumber has been drying near Portland, Ore., special care having been taken to provide only clear, vertical grain wood.

If a hen can lay an egg in the day-time must it lay awake at night?

**PLANER FOR SALE**

26-inch McGregor, Gourlay Double Surfacer, with countershaft hangers and pulleys complete. In good condition. Apply,

MATHEWS BROS., LIMITED,
Toronto, Ont.

## Poles Used in Canada, 1910

The Forestry Branch of the Department of the Interior has compiled statistics dealing with the poles purchased in Canada during 1910. The total number of poles purchased was 782,841, or an increase of 118 per cent. over 1909. The total value of these poles at point of purchase was $1,043,874, and the average price of poles was $1.33 or less by six cents than the price per pole in 1909. Steam railroads, telephone and telegraph companies used 95 per cent. of these poles, the remaining five per cent. being used by electric roads, power and light companies; 97 per cent. of the total consumption were cedar poles, which for their cost give better service than any other wood. At present none of these poles are treated or preserved by any method, in which respect we are far behind the United States. The United States using in 1909, 3,738,740 poles at an average cost of $1.89, or at 50 cents more per pole than in Canada, found that it paid them to use preservative methods. During the last three years the treatment of poles has advanced rapidly, so that in 1909, 15 per cent. of the total number were treated by the creosote or other methods. This is an increase of 67 per cent. over the number treated in 1908. At present the United States have 87 timber treating plants, while Canada has none. It is to be hoped that this great inequality will sonn be done away with, and that pole users in Canada may take up this cheap and rational method of securing greater service from the poles used and thus lessening the drain on the forest.

## Much Rough Lumber Imported by Canada

Sawmills in eastern Washington and northern Idaho are sending an average of 90 cars of rough dimension lumber monthly to British Columbia and other provinces in western Canada, according to a report just issued by Albert W. Cooper, secretary of the Western Pine Manufacturers' Association, who says the shipments for the first six months of 1911 amounted to 12,500,000 feet, as against 12,000,000 feet for the twelve months last year, and 3,000,000 feet in 1909. Local lumbermen estimate the total shipments from this district to Canada at 25,000,000 feet for 1911. There is no duty on rough dimension lumber. Many of the lumbermen in the Pacific slope country take issue with the national association, which is opposed to the proposed reciprocity treaty with Canada on the ground that the agreement will be beneficial to the industry in the northwest and Pacific states. They say also that as soon as the duty on the higher grades is removed there will be substantial increases in the output of the mills on this side of the line.

### His Idea of a Good Time

Willie: "Did you have a good time at the picnic?"

Jimmie (small boy): "Fine! Sis got into a wasps' nest, pa fell out of a tree when he was putting up a swing, and ma burnt her fingers making tea. Awful fun, I can tell you."

# From Coast to Coast

### Increase of Capital of Joint Stock Companies

The Coast Lumber Company, Limited, Regina, Sask., has increased its capital from two hundred thousand dollars to five hundred thousand dollars.

### Piles of Lumber Burned

Ottawa.—For a second time last week disaster struck the village of Aylmer, on the Quebec side of the river, ten miles from here. Fire broke out in the lumber piles there at noon yesterday, and ten million feet of lumber, has gone up in smoke. At three o'clock the fire was fairly well under control.

The Village of Aylmer was threatened, as the lumber is piled right within the corporation limits, but only a couple of small houses were affected.

It is estimated the lumber was worth $350,000, and it was insured for around $200,000. It was owned partly by the Fraser Bryson Lumber Company and the balance by the McAuliffe Davis Company. It had all been sawn at Ritchie Bros.' mills and piled in yards near there.

The fire in Maxwell, Ont., destroyed Smiley and Robertson's sash and door factory, sawmill and lumber yard; loss $30,000.

### His Ear Torn Off

William Dunford, St. Clair, an employee of the Manson Compbell Co., of Chatham, Ont., while unloading a car of lumber, fell off the car and sustained several serious injuries. His left ear was torn off and his head was badly bruised.

### Fire in Sarnia Lumber Yards Causes a Loss of $160,000

Sparks from a locomotive or boy bathers smoking in lumber piles started a fire which for an hour threatened to wipe out the town of Sarnia.

The fire started in the yards of F. McGibbon and Sons, wholesale lumber dealers of Sarnia and Penetanguishene. It spread to the yards of the Lebel, Turnbull Lumber Co. Limited, destroying the offices and four Grand Trunk cars in the siding, as well as all the lumber in the yards and a long stretch of wharves, with a total loss of about $160,000.

Loss of the Lebel Turnbull Company is about eighty to a hundred thousand dollars, with about half covered by insurance. McGibbon and Sons lose sixty thousand, with three-fourths or more covered.

The planing mill of McGibbon and Sons and the plant of the Sarnia Fencing Co. caught fire several times.

### Applied for Charter

The Hartland Woodworking Company, Limited, have made application for charter to carry on business as general woodworkers, manufacturing flooring, furniture, house finish and buildings. Capital $15,000. Place of business to be in Hartland, N. B.

### Old Better Than New

Sound lumber, 25 years old, has been proved by a German government test to be materially stronger than new stock.

### Four Hundred Men Start Work

The new mill of Shevlin-Clarke Co. which has been erected at Fort Frances, has commenced its season's cut. They employ 400 men and did not get any concessions, only a fixed rate of assessment.

### The Furniture Trade in Chicago

More furniture is sold at wholesale in Chicago than in all the other cities of the country combined. There are 220 factories, employing about 28,000 people, and producing goods in excess of $25,000,000 value annually.

### The Tallest Tree

Australia claims to have the tallest tree in the world. It has long been thought that to California belongs this distinction, but, while California trees are of gigantic dimensions, they do not come up to Australia's eucalyptus trees. The Californians are noted not so much for their height as for their girth and diameter. The tallest tree in California yet discovered was found by actual measurement to be 340 feet high. Australia's record gum tree can beat this by 140 feet. Baron Mueller (formerly government botanist of Victoria) is stated to have said that Australian gum trees attain a height of 550 feet; but the tallest tree even the baron ever measured was a prostrate one on the Blacks' Spur, ten miles from Halesville, totaling 480 feet. This tree was 81 feet in girth near the root. Another, found in the same locality, was 415 feet high, with a circumference of 60 feet at the base.

### Many Americans Still Coming Into Canada

Figures at hand at the immigration hall for the fiscal year just completed reach a total of 311,084, or over 100,000 greater than the immediate previous fiscal year. The best previous year was 1907-1908 when 262,469 immigrants entered Canada. Of last year's aggregate 123,013 came from the United Kingdom, 86,212 being English. Americans numbered 121,451 and Europeans 61,620. The prairie provinces absorbed the bulk of immigrants, but 54,689 went to British Columbia, and this of the very best class. Indeed, possibly the most significant feature of these statistics is the big wave to the Pacific province.

### Killed in Labor Ranks

Casualties in Ontario's industrial army last year totalled 764, and the fatalities 36. This is the toll of 1910, according to reports of the Provincial Inspectors of Factories, issued Tuesday. Chief Inspector James T. Burke, in his report to the Minister of Agriculture, states that his department has inspected factories, mercantile establishments and workshops in 452 cities, towns and villages in Ontario. The

employees in these places number, approximately, 233,682, or more than half the population of Toronto.

### Two Bad Accidents

Chatham.—Harry Campbell, an employee of the Blonde factory, had two of his fingers taken off in a joiner at the factory. Campbell came here a few weeks ago from Meaford.

George Wood met with a serious accident in the Gray factory. He was operating a sand drum when his hand slipped and the flesh was ground to the bone. He will be laid up for some time.

### Indicted for Forming New Variety of Trust

Chicago.—Fourteen secretaries of as many retail lumber dealers' associations were indicted by a speciel grand jury here for alleged violation of the Serman law, constituted a new kind of "trust" according to the United States attorneys, who conducted the investigation.

The retail lumber dealers it was admitted at the close of the investigation had no incorporation, no capital stock and did not try to control prices and prevent competition among themselves. Instead they had what the attorneys say was a "trust of power" and sought to provide that all lumber should be sold to consumers only through retail dealers and not directly by wholesalers or manufacturers.

The secretaries of the retail associations constitute the lumber secretaries' bureau of information, incorporated in Illinois in 1905, and represent thousands of retailers.

The power of the retailers' organizations was wielded through the bureau of information according to the indictments, and by a scheme resembling blacklist published in a trade paper. This publication was named in the list of overt acts, as the means by which the secretaries published to the trade the names of manufacturtrs and wholesalers, who sold direct to consumers.

### Trade Factory Opens

The Rathbun company is opening the box factory in Kingston, Ont., again for operations, with John Jenkes in charge. The company has a large contract to start.

### Americans Interested in Lumber Merger of Vast Dimensions

A $5,000,000 merger of lumber interests in British Columbia which Grand Rapids capitalists are largely interested in has just been completed in Grand Rapids, Michigan. By the merging of the holdings of the Michigan Pacific Lumber company with a capital of $1,500,000 and Michigan Puget Sound Lumber company with a capital of $1,000,000, both Michigan corporations, there was formed the Canadian and Puget Sound Lumber company of British Columbia, with headquarters at Victoria, B. C., where papers have been filed. The president is Charles W. Liken of Sebewaing, Mich., the secretary Orla B. Taylor, Detroit, the treasurer, Guy S. Brown, of Victoria, directors, Dudley B. Waters, Grand Rapids, chairman.

### Big Loss

The Bowman Lumber Company's mill at Revelstoke, B.C., was completely destroyed recently, together with several hundred thousand feet of unsawn timber. The loss will be $70,000, covered by insurance.

### Plans for New Factory

The box factory operated by Moirs Limited, near Bedford, N.S., was recently destroyed by fire. The loss to the building, machinery, and stock was about $18,000, and the insurance about $12,000. The boxes manufactured by the company were used for shipping their extensive product in biscuits and confectionery. Plans are already being arranged for the erection of a new factory which will embrace a number of important improvements.

### Plant to Cost $125,000

Contsruction of a new sawmill to replace the one at Pitt River, Coquitlam, destroyed by fire several months ago will be started within a fortnight by the Pitt River Lumber Company. Mr. J. C. Shields, president of the company, states that the mill will be built of concrete and steel in order to make it absolutely fireproof. The plant will cost between $125,000 and $150,000.

### Open Old Shop

The Hartland Woodworking factory, Hartland, N.B., which has been idle for about eight years, has been bought by a company comprised of local business men. It is being thoroughly overhauled; new machinery and an 80-horse power engine and boiler are being put in. It will be ready for operation soon.

### New Incorporation

The Parsons Building Company, Limited, capital $50,000; head office Regina, Sask.

### A Hardwood Mill

Mitchell Brothers, of Lucknow, Ont., have nearly completed arrangements for establishing a hardwood mill on Cockburn Island, Ont. Mitchell Brothers have several other mills in the province.

### Paper Mill Destroyed

Fire totally destroyed the sawmill of the Riordon Paper Company, Calumet, Que. Only the books were saved. Three hundred men are employed by the mill, and, in company with the men from the company's Hawkesbury mill.

### Headquarters for Lumber Merger

Following the merger between the Michigan Puget Sound Lumber Company and the Michigan Pacific Lumber Comany into the Canadian Puget Sound Lumber Company, Limited, with a capital of $5,000,000, the largest merger on the Pacific coast, and with the selection of Victoria as the head office of the new concern, extensive additions to the new company's operations at this port will be made in the near future.

At present the Canadian Puget Sound Lumber Company is loading 1,500,000 feet of lumber on board the sailing ship Arctic stream, at its mills on the Inner Harbor. This cargo is destined for Durban, South Africa. It is expected that arrangements will shortly be made for another export order from the same mills.

# BUYER'S DIRECTORY

**BABBITT METALS.**
Shurly Dietrich Co., Ltd., Galt, Ont.
Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

**BALUSTER LATHES.**
C. Mattison Machine Works, Beliot, Wis.
Ober Mfg. Co., Chagrin Falls, O.
Baxter D. Whitney & Son, Winchendon, Mass.

**BAND SAW FILING MACHINERY.**
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
Shurly Dietrich Co., Ltd., Galt, Ont.
Fay & Egan Co., Cincinnati, Ohio.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

**BAND SAWS.**
Shurly Dietrich Co., Ltd., Galt, Ont.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
R. H. Smith Co., Ltd., St. Catharines, Ont.

**BAND SAW MACHINERY.**
Mussens, Ltd., Montreal.
Canada Machinery Agency, Montreal.
Berlin Machine Works, Ltd., Hamilton, Ont.
Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

**BAND SAW MILLS.**
Berlin Machine Works, Ltd., Hamilton. Ont.
Canada Machinery Agency, Monteral.
Mussens, Ltd., Montreal.
Fay & Egan Co., Cincinnati, O.

**BAND SAW STRETCHERS.**
Fay & Egan Co., Cincinnati, O.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

**BENDING MACHINES.**
Mussens, Ltd., Montreal.
Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.

**BELTING.**
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Sadler & Haworth, Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
H. W. Petrie, Ltd., Toronto.

**BELTS (Endless).**
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Sadler & Haworth, Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt.
H. W. Petrie, Ltd., Toronto.

**BELT CEMENT.**
Sadler & Haworth, Montreal.

**BELT FASTENERS.**
Sadler & Haworth, Montreal.

**BELT DRESSING.**
Sadler & Haworth, Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt.

**BLOWERS.**
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
Sheldons, Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

**BLOW PIPING.**
Sheldons, Ltd., Galt, Ont.

**BOILERS.**
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

**BORING MACHINES.**
Canada Agency Montreal.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
J. M. Nash, Milwaukee, Wis.
Valley City Machine Works, Grand Rapids, Mich.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

**BOX MAKERS' MACHINERY.**
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Baxter D. Whitney & Son, Winchendon, Mass.
C. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

**CABINET PLANERS.**
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Valley City Machine Works, Grand Rapids, Mich.
Baxter D. Whitney & Son, Winchendon, Mass.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

**CARS (transfer).**
Sheldons, Ltd., Galt, Ont.

**CARVING MACHINES.**
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Valley City Machien Works, Grand Rapids, Mich.

**CHISELS.**
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.

**CIRCULAR SAW MILLS.**
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

**CHAINS (Silent).**
Jones & Glassco, Montreal.

**CLAMPS (Chain, Carpenter, Cabinet, Pattern Makers, Bench, Mitre, Piling, Mounted and Rotary Wheel).**
Black Bros. Machinery Co., Mindota, Ill.
J. A. Fay & Egan Co., Cincinnati, O.

**CLAMPS (Saw).**
Shurly Dietrich Co., Ltd., Galt, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

**CLUTCHES.**
J. A. Fay & Egan Co., Cincinnati, O.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

**COLUMN CLAMPS.**
Black Bros. Machinery Co., Mendota, Ill.

**COLUMN MACHINERY.**
J. A. Fay & Egan Co., Cincinnati, O.
C. Mattison Machine Works, Beloit, Wis.

**CORE BOX MACHINES.**
J. A. Fay & Egan Co., Cincinnati, O.
E. & B. Holmes Machinery Co., Buffalo, N.Y.

**CUT-OFF SAWS.**
Shurly Dietrich Co., Ltd., Galt, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
Simonds Canada Saw Co., Montreal.
R. H. Smith C., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

**CUTTER HEADS.**
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Samuel J. Shimer & Sons, Mitton, Pa.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

**DADO HEADS.**
C. Mattison Machine Works, Beloit, Wis.

**DISK GRINDERS.**
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.

**DOGS (Saw Mill).**
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.

**DOVETAILING MACHINES.**
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.

**DOWEL MACHINES.**
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Valley City Machine Works, Grand Rapids, Mich.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

**DRILLS (Automatic Hand).**
North Bros. Mfg. Co., Philadelphia, Pa.

**DRILLS (Reciprocating).**
North Bros. Mfg. Co., Philadelphia, Pa.

**DRILLS (Breast).**
North Bros. Mfg. Co., Philadelphia, Pa.

**DRYING MACHINERY.**
Canada Machinery Agency, Montreal.
Sheldons, Ltd., Galt, Ont.

**DRY KILNS.**
Canada Machinery Agency, Montreal.
Sheldons, Ltd., Galt, Ont.

**DUST COLLECTORS.**
Canada Machinery Agency, Montreal.
Sheldons, Ltd., Galt, Ont.

**DUST SEPARATORS.**
Canada Machinery Agency, Montreal.
Sheldons, Ltd., Galt, Ont.

**DYNAMOS.**
Canada Machinery Agency, Montreal.

**EDGERS (Gang).**
Berlin Machinery Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
Simonds Canada Saw Co., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Fisher, Sander Co., Berlin, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

**EDGERS (Single Saw).**
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
Simonds Canada Saw Co., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

**END MATCHING MACHINE.**
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler Ont.

Mussens, Ltd., Montreal.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

ENGINES (Steam).
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

EXHAUST FANS.
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
Sheldons, Ltd., Galt, Ont.

FLOORING MACHINES.
Berlin Machine Works, Ltd., Hamilton.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler.
Mussens, Ltd., Montreal.
Samuel J. Shimer & Sons, Milton, Pa.
Baxter D. Whitney & Son, Winchendon, Mass.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

FLINT.
Wausau Quartz Co., Wausau.

FLUTING HEADS.
J. A. Fay & Egan Co. ,Cincinatti, O.

GAINING MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinatti, O.
C. Mattison Machine Works, Beliot, Wis.
Mussens, Ltd., Montreal.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie Co., Ltd., Toronto.

GAS ENGINES.
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
H. W. Petrie, Ltd., Toronto.

GAUGES (Saw).
Shurly Dietrich Co., Ltd., Galt, Ont.
Simonds Canada Saw Co., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

GEAR HOBBING MACHINE.
Reynolds Machine Co., Moline, Ill.

GLUE CLAMPS.
Black Bros. Machinery Co., Mendota, Ill.
H. W. Petrie, Ltd., Toronto.

GLUE HEATERS.
J. A. Fay & Egan Co., Cincinnati, O.

GLUE SPREADERS.
J. A. Fay & Egan Co., Cincinnati, O.

GRINDERS (Cutter).
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Falls Machine Co., Sheboygan Falls, Wis.

GRINDERS (Knife, etc.).
E. C. Atkins & Co., Hamilton, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
T. A. J. Burton Saw Co., Ltd., Vancouver, B.C.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

GRINDERS (Tool).
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Valley City Machine Works, Grand Rapids, Mich.

GROOVING HEADS.
E. C. Atkins & Co., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
C. Mattison Machine Works, Beloit, Wis.
Samuel J. Shimer & Sons, Milton, Pa.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

HAND PROTECTORS.
J. A. Fay & Egan Co., Cincinnati, O.
Jones Safety Device Co., Hamilton, Ont.

HAND SCREWS.
Black Bros. Machinery Co., Mendota, Ill.
J. A. Fay & Egan Co., Cincinnati, O.

HEATING APPARATUS.
Sheldons, Ltd., Galt, Ont.

HANDLE AND SPOKE MACHINERY.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
J. M. Nash, Milwaukee, Wis.
Ober Mfg. Co., Cragrin Falls, O.
Baxter D. Whitney & Son, Winchendon, Mass.

HUB MACHINERY.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.

INJECTORS.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

JOINTERS.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

KNIVES (Planers and Others).
Shurly Dietrich Co., Ltd., Galt, Ont.
E. C. Atkins & Co., Hamilton.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.
Samuel J. Shimer & Sons, Milton, Pa.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

LACE LEATHER.
Sadler & Haworth, Montreal.

LAST MACHINERY.
Canada Machinery Agency, Montreal.

LATHES (Pattern Makers').
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Valley City Machine Works, Grand Rapids Mich.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

LATHES (Turning).
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Haspeler, Ont.
C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Plessisville Foundry, Plessisville, Que.
Valley City Machine Works, Grand Rapids, Mich.
Baxter D. Whitney & Son, Winchendon, Mass.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

LOOSE PULLEYS.
J. A. Fay & Egan Co., Cincinatti, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry. Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

LUBRICANTS AND GREASES.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

MITRE MACHINES.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

MITRE SAWS.
Shurly Dietrich Co., Ltd., Galt, Ont.
E. C. Atkins & Co., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Simonds Canada Saw Co., Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo N.Y.
H. W. Petrie, Ltd., Toronto.

MITRE CLAMPS.
Black Bros. Machinery Co., Mendota, Ill.
H. W. Petrie, Ltd., Toronto.

MORTISING MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
Black Bros. Machinery Co., Mendota, Ill.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinatti, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Jones & Glass Co., Montreal.
Mussens, Ltd., Montreal.
Plessisville Foundry Co., Plessisville, Que.
Valley City Machine Works, Grand Rapids, Mich.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

MOTORS.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.

MULTIPLE BOXING MACHINES.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
J. M. Nash, Milwaukee, Wis.

PATTERN SHOP MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Baxter D. Whitney & Son, Winchendon, Mass.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

PICTURE FRAME MACHINERY.
Black Bros. Machinery Co., Mendota, Ill.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.

PLANES.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.

PLANERS.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Baxter D. Whitney & Son, Winchendon, Mass.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

PLANING MILL MACHINERY.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Macihnery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Samuel J. Shimer & Sons, Milton, Pa.
Baxter D. Whitney & Son, Winchendon, Mass.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
Black Bros. Machinery Co., Mendota, Ill.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie Co., Ltd., Toronto.

PULLEYS.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinatti, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

QUARTZ.
Wausau Quartz Co., Wausau.

RESAWS.
Shurly Dietrich Co., Ltd., Galt, Ont.
E. C. Atkins & Co., Hamilton, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency Montreal.
Simonds Canada Saw Co., Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinatti, O.

Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

RIM AND FELLOE MACHINERY.
J. A. Fay & Egan Co., Cincinnati, O.

RIP SAWING MACHINES.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

ROLLER BEARINGS.
Mussens, Ltd., Montreal.

SAFETY GUARDS (For Band Saw Machines, Jointers, Rip Sawing Machines, Shapers, Swing Saws, etc.).
The Jones Safety Device Co., Ltd., Hamilton, Ont.

SANDERS.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
J. M. Nash, Milwaukee, Wis.
Ober Mfg. Co., Chagrin Falls, O.
Plessisville Foundry, Plessisville, Que.
Fisher Sander Co., Berlin, Ont.
Black Bros. Machinery Co., Mendota, Ill.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

SAND.
Wausau Quartz Co., Wausau.

SANDPAPER.
Black Bros. Machinery Co., Mendota, Ill.

SANDERS (Moulding, Belt and Panel).
Black Bros. Machinery Co., Mendota, Ill.
H. W. Petrie, Ltd., Toronto.

SASH, DOOR AND BLIND MACHINERY.
Berlin Machine Works, Ltd., Hamilton.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Samuel J. Shimer & Sons, Milton, Pa.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
Black Bros. Machinery Co., Mendota, Ill.
H. W. Petrie, Ltd., Toronto.

SAWS (Hand).
Shurly Dietrich Co., Ltd., Galt, Ont.
E. C. Atkins & Co., Hamilton, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
Simonds Canada Saw Co., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.

SAW MILL MACHINERY.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.

Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

SAW SWAGES, AUTOMATIC FILERS.
E. C. Atkins & Co., Hamilton, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

SAW TABLES.
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

SCRAPING MACHINES.
Baxter D. Whitney & Son, Winchendon, Mass.

SCROLL SAWS.
Shurly Dietrich Co., Ltd., Galt, Ont.
E. C. Atkins & Co., Hamilton, Ont.
Canada Machinery Agency, Montreal.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.

SECOND HAND MACHINERY.
Canada Machinery Agency, Montreal.
Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

SHAPERS.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Plessisville Foundry, Plessisville, Que.
Samuel J. Shimer & Sons, Milton, Pa.
Baxter D. Whitney & Son, Winchendon, Mass.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

SHAVING COLLECTORS.
Canada Machinery Agency, Montreal.

SINGLE SPINDLE BOXING MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.

SLAVE SAWING MACHINE.
Baxter D. Whitney & Son, Winchendon, Mass.

SURFACERS.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Baxter D. Whitney & Son, Winchendon, Mass.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

SWING SAWS.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Plessisville Foundry, Plessisville, Que.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

TABLE LEG LATHES.
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Baxter D. Whitney & Son, Winchedon, Mass.

TENONING MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

TOOLS (Hand).
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Samuel J. Shimer & Sons, Milton, Pa.

TRIMMERS.
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.

TRUCKS.
Sheldons, Ltd., Galt, Ont.
Hespeler Machinery Co., Ltd., Hespeler, Ont.

TURNING MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Plessisville Foundry. Plessisville, Que.
Baxter D. Whitney & Son, Winchendon, Mass.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

UNDER-CUT SELF-FEEDING FACE PLANER.
J. A. Fay & Egan Co., Cincinnoti, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Falls Machine Co., Sheboygan Falls, Wis.

GUMMERS, ETC.
E. C. Atkins & Co., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.

UNIVERSAL WOODWORKER PLANER.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt Ont.
H. W. Petrie, Ltd., Toronto.

VENTILATING APPARATUS.
Sheldons, Ltd., Galt, Ont.

VENEER DIERS.
Sheldons, Ltd., Galt, Ont.

VENEER PRESSES (Hand and Power).
Canada Machinery Agency, Montreal.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Hydraulic Press Mfg. Co., Mount Gilead, Ohio.
Mussens, Ltd., Montreal.
Black Bros. Machinery Co., Mendota, Ill.

VISES.
Mussens, Ltd., Montreal.

VISES (Band Saws).
Shurly Dietrich Co., Ltd., Galt, Ont.
Simonds Canada Saw Co., Montreal.
E. C. Atkins Co., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver. B.C.
H. W. Petrie, Ltd., Toronto.

VISES (Pattern Makers').
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.

VISES (Circular Saws).
E. C. Atkins Co., Hamilton.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
H. W. Petrie, Ltd., Toronto.

WAGON AND CARRIAGE MACHINERY.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Baxter D. Whitney & Son, Winchendon, Mass.

WOOD PULLEYS.
Canada Machinery Agency, Montreal.
Plessisville Foundry, Plessisville, Que.

WORK BENCHES.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.

# After the Whistle Blows

### Wrongs of the Poor

Departures from the old way in things educational come in for hard raps, first and last, but not often are they assailed as in this letter which a glowering boy handed to his teacher the other day:

"Madim you kepe teling my son to breeth with his dierfram I spose rich boys and girls all has dierframs but how about when their father only makes 2 dollers a day and theres 4 younger I tel you its enoug to make everybody socialists first its one thing and then its another and now its dierframs its too much.

---

### Tough!

"Well, well," he exclaimed, as he tackled her first meat pie. "Where did you get this?"

"I made that out of Mrs. Snorter's cookery book," replied the young wife; "it's a——"

"Ah," broke in the husband, "this leathery part is the binding, I suppose!"—

---

### Realistic

Tommy came home the other evening with his clothes full of holes.

"What have you been doing to yourself?" asked his mamma, quite alarmed.

"We were playing 'shop,'" replied Tommy, "and I was the cheese."

---

### Objections

"But, Mabel, on what grounds does your father object to me?"

"On any grounds within a mile of our house."

---

### Quite as Bad

"Girls make me tired," said the fresh young man. "They are always going to palmists to have their hands read."

"Indeed!" she said sweetly, "is that any worse than men going into saloon bars to get their noses red?"

---

### Once, But Enough

A sweet young thing of eighteen who had not traveled much was riding on a railroad that was rather noted for its accidents.

"How deliciously dangerous," she thought. When the conductor came she said to him:

"How often do you kill a person on this road?"

The conductor smiled, and, as he clipped her ticket, he said:

"Just once, Miss."

---

### His Idea of a Good Time

Willie: "Did you have a good time at the picnic?"

Jimmie (small boy): "Fine! Sis got into a wasps' nest, pa fell out of a tree when he was putting up a swing, and ma burnt her fingers making tea. Awful fun, I can tell you."

---

### Up-to-date

"Mr. Cleaver, how do you account for the fact that I found a piece of rubber tire in one of the sausages I bought here last week?"

"My dear madam, that only goes to show that the motor car is replacing the horse everywhere."

---

### The Essential Duty

With his hair sprucely combed, his jacket scrupulously brushed, his hands a living advertisement for the uses of soap and his face beaming with the newly found glories of seven shilling a week—so the manager found him on his first morning at the office.

"Ah, Thomas," the manager said, affably, "working hard?"

"Yes, sir," the office boy replied, trying to look important as he addressed an envelope upside down.

"Good! And has the cashier instructed you as to your duties?"

"Yes, sir."

"Well, fire ahead and repeat them," his employer said. "Memory is an invaluable asset, so we'll see how your's works."

Thomas hesitated for a moment. Then, as the virtue of truth clamored for expression, he piped out:

"Please sir, I am to wake him up as soon as ever I hear you coming."

---

### They Were Glad

John Smith had worked for the firm forty-odd years, and decided to quit. The firm, in consideration of his long and faithful service, arranged to give him a monetary recognition. The superintendent of the shop, a German and an extra-good mechanic, was asked to present it. He was advised to use a little sentiment in making the presentation speech, and this is the way he did it:

"John, you haff work for the firm over forty years?"

"Yes."

"You are going to quit?"

"Yes."

"Vell, they are so glad of it that they have asked me to hand you this hundred dollars."

---

"Why do you call your boy 'Flannel'?"

"Because he always seems to shrink from washing."

---

### No Judge

"Your father doesn't think you have been especially well behaved," said the small boy's uncle.

"I know that," answered the precocious juvenile. "But things I have heard mother say make me think he isn't any great judge of high-class deportment."

# "Amphibia"

**Waterproof**

# Leather Belting

is made to do hard work in a wet place better than any other Belt. Let us prove it to you by sending a Belt on trial.

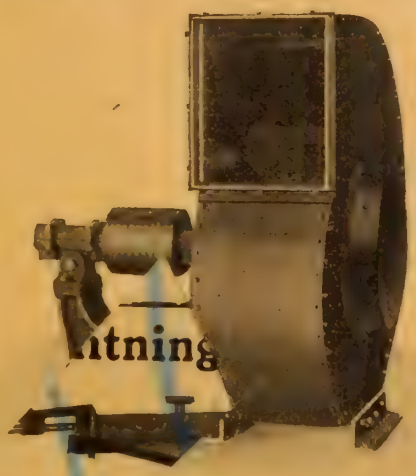
We always carry a full stock of all kinds of Leather Belting.

## Sadler & Haworth

**Montreal - Toronto**

The New Slow Speed

# Sheldon Exhaust Fan



**The ... revolutionizing the Shaving Exhaust Business**

It will ... wet or dry, long or short shavings and sawdust, and will do this with a guaranteed reduction in speed of from 25 to 40% less and with a power consumption of 20 to 35% less, than any other exhaust fan. The Casing is very similar to that formerly used, but the wheel is of an entirely different design.

**Let us tell you more about it**

## SHELDONS LIMITED - Galt, Can.

# An Idle Machine Earns No Money

Frequent shut-downs and other annoyances run away with a lot of money that could easily be saved by the use of

## The Shimer Cutter Heads

There are many reasons for the popular endorsement of these tools, among which are the proven facts that TIME AND MATERIAL CAN BE SAVED BY THEIR USE.

The "make-ready" built into every Shimer Cutter Head saves filing the cutters to shape at each sharpening—because the Shimer cutters carry the exact shape of the tongue and groove or whatever mould they are to produce. They are filed or ground to sharpen and in an instant of time are moved around their center holding bolt to a gauge, which insures that every cutter is in its exact position. The "make-ready" also saves taking the Heads off the spindles to make adjustments for tight or loose fitting of the tongue in the groove—a simple turn of the expansion ring enlarging one or making the other smaller as may be desired.

The Shimer Cutter Heads are made on the interchangeable plan and many of the best paying mills have Heads for all classes of work, which are slipped off and on the spindles in a minute's time. Some have duplicates for the same kind of work and one set is sharpened while the other is being used. In whatever way they are worked they will be found to be paying tools.

Our large Catalogue and Pattern Book shows styles for every class of work, besides giving much information of value to the mill man. Send for a copy.

We make a number of Heads for special purposes. For any design of material you get out in quantity let us give our estimate on the Head to do the work. Our prices are uniformly low—our goods of best quality.

The dealer who accepts your order for the Shimer Cutter Head and supplies you with another means to deceive you in no small matter. Look for the Name and Trade Mark "The Shimer Cutter Head" stamped on every genuine tool. Any other is spurious—send it back—demand the genuine, of quality and helpfulness, with a record of forty years of upbuilding and improvement. It costs no more.

## Samuel J. Shimer & Sons,

**Branch of Milton, Pa. - Galt, Ontario, Can.**

You want a planing machine that will do the greatest amount of fine surfacing, all the time, on any kind of lumber brought in, at least cost and upkeep expense.

These are qualifications that have placed Whitney Planers in the largest, best regulated, best equipped furniture factories, planing mills and box making concerns in existence.

Whatever the kind of lumber is brought to Whitney Planers, whether a single or double surfacer, it will be delivered in quick time, planed absolutely smooth, and furthermore, you can drive a Whitney to the full limit of its capacity with perfect assurance that it will stand up to the work without going down and out for repairs.

We only await inquiry from you to show to your satisfaction that Whitney Planers, either single or double surfacers, are superior machines that produce superior planing.

---

Write

## Baxter D. Whitney & Son

**Winchendon, Mass.**

**WYSONG & MILES CO., Greensboro, N.C.**
Agents for Virginia, North and South Carolina, Georgia, Florida and Eastern Tennessee

**Pacific Coast Sales Department, H.H. PLUMMER, Manager**
Pacific Building, Seattle, Wash.

**HENRY KELLEY & CO.**
26 Pall Mall, Manchester, England

# CANADIAN WOODWORKER

Vol. 10 Toronto, August, 1911 No. 2



RAC NE

## Shaper Guards

**Protect the Operator and SAVE DAMAGE SUITS**

Endorsed and recommended by all Factory Inspectors.

**Write for Prices and full Particulars, Free**

**Fair Mfg. Co., Racine, Wis.**

BOX E.

## Lightning Cut-Off Saw

**TO PRODUCE MORE WORK, TO INCREASE PROFITS**

We suggest our Lightning Cut-Off saw. Is self contained. Feed semi automatic. Saw mandrill runs in self oiling bearings.

*Write us for particulars and price*

**THE SOUTHAMPTON IRON WORKS**

**Southampton, Ont.**

From

## Nova Scotia to British Columbia

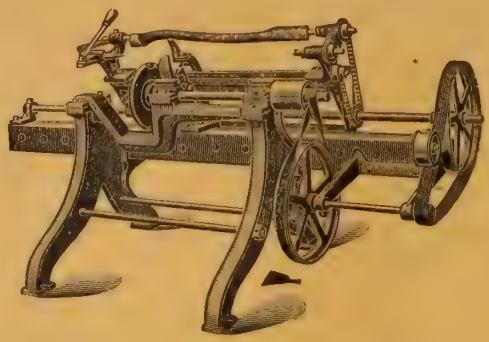
**Burton's** Saws are to be found in Mills, large and small.

We can tell you, or show you, good reasons, for this wide-spread sale.

Ask the Millman down street what he thinks of our saws, and if he is a user, he'll prove to be our best salesman.

Let us send you some facts about saws in general, and Burton's Saws in particular.

**THE A. J. BURTON SAW CO. Limited, VANCOUVER, B.C.**



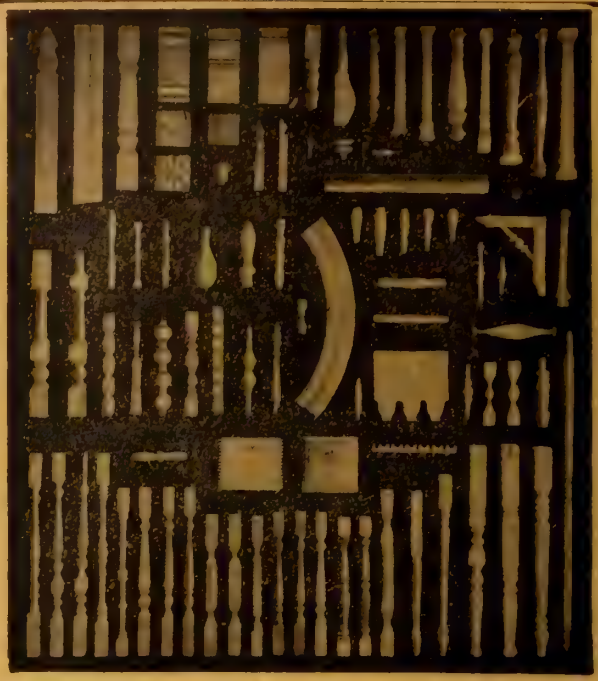
This cut shows the No. 11 Ober Lathe for turning Axe, Adz, Pick, Sledge, Hammer and Hatchet Handles, Spokes, Whiffletrees, Gun Stocks, Shoe Lasts, etc., etc. It is very Simple, Strong and Durable, requires but very little power and is very quickly and easily changed from one kind of work to another.

We also manufacture other Lathes for making Spokes, Handles and Variety Work; Sanders, Shapers, Boring and Chucking Machines, etc., etc.

Complete Catalogue and Price List Free.

**The Ober Mfg. Co.**

**31 Bell St., CHAGRIN FALLS, O., U. S. A.**



**MAKES ONE DAY EQUAL A WEEK**

**Our Universal Turning and Variety Machine**

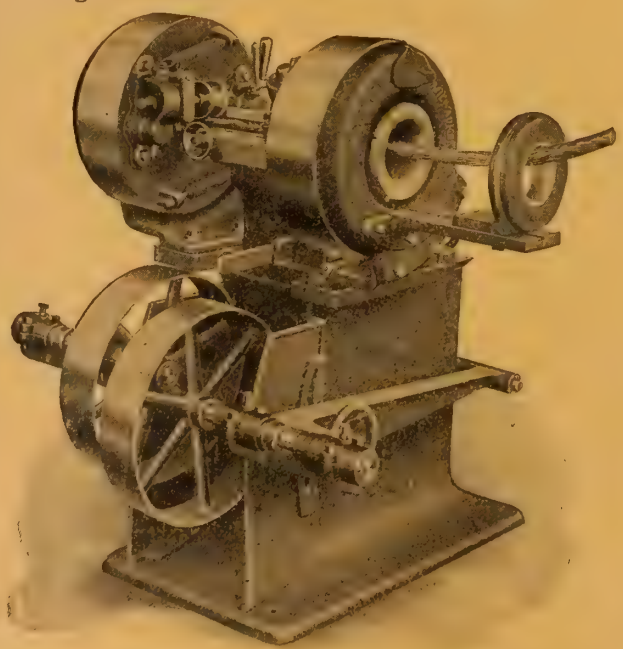
will turn out as much work in a day as a skilled man can produce in six days. Turnings and mouldings of limitless variety and pattern, and equally adapted to panel raising, jointing, cabinet sowing, etc. Because of its wonderful versatility, you will find it "always on the job." Built like a machine tool for the severest service.

*Glad to meet you a little more than half way—ask for our special offer*

**C. Mattison Machine Works, 883-5th St., Beloit, Wis.**

**BENT CHAIR LEGS and POSTS, BENT HANDLES, ETC.**

is just the kind of work the No. 6 NASH SANDER is designed to sand.



It will also sand straight work equally well.
Your address on a postal will bring interesting details.

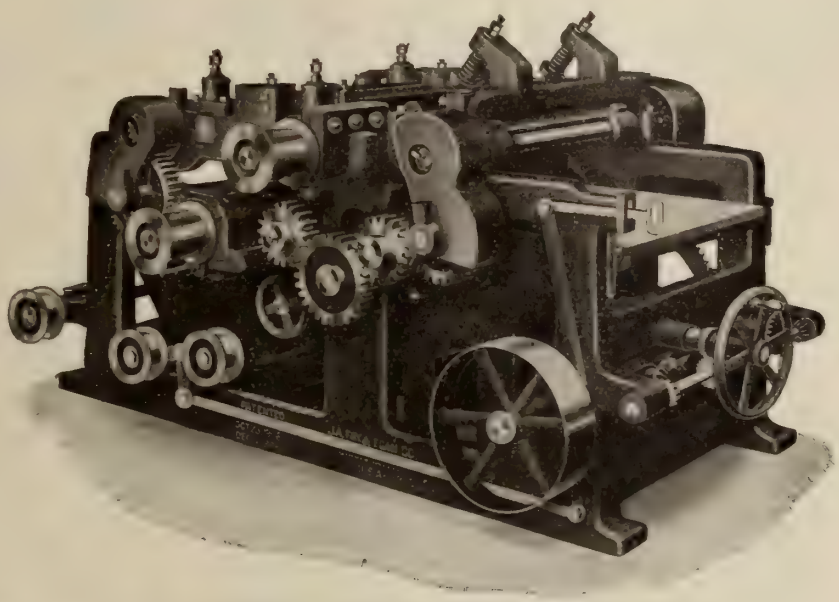
**J. M. Nash,** 842-848 30th St. **Milwaukee, Wis.**

**Carborundum Knife Grinding Wheels have cut their way into favor in many of the most prominent wood working establishments in the country**

They not only do twice the work of any other grinding wheels—but they do it better and cleaner. They stand up well—do not burn the work—do not draw the temper even from the finest steel. Require almost no attention and last much longer than other abrasive wheels.

**THE CARBORUNDUM COMPANY**

**Niagara Falls, New York.**



Patented—Oct. 10, 1905
Oct. 23, 1906

NO. 200 DOUBLE CYLINDER SMOOTHING PLANER.

Dec. 4, 1906 and
March 28, 1911

# The Latest Double Surfacer

Is the Fay & Egan No. 200—

A machine which can be used for ordinary surfacing, where quantity is the main thing, or—

For extra smooth work to take a fine finish, as used in furniture, piano and cabinet factories.

The first No. 200 was placed in a parquet flooring factory — "It's the finest ever" wrote the owner.

Thin stock, such as used in cigar box work, is pretty hard to surface on two sides without tearing—but not if you use the new No. 200.

Every detail has been closely watched in building this machine—

Notice how the frame is made to rest on the floor the full length of the machine to give rigidity. This is only one point; the real feature of this tool is—The new Fay & Egan Patented Round Cutter Head—

This head is mechanically perfect, combining strength, simplicity and the correct cutting circle—

But after all, seeing is believing, so tell us what kind of wood you use principally and we will send you a sample of work done that will talk better than words.

**Write for large illustrated circular.**

## J. A. FAY & EGAN Company

**Mfrs. of Wood-Working Machinery.** **153-173 W. Front St., Cincinnati, O.**

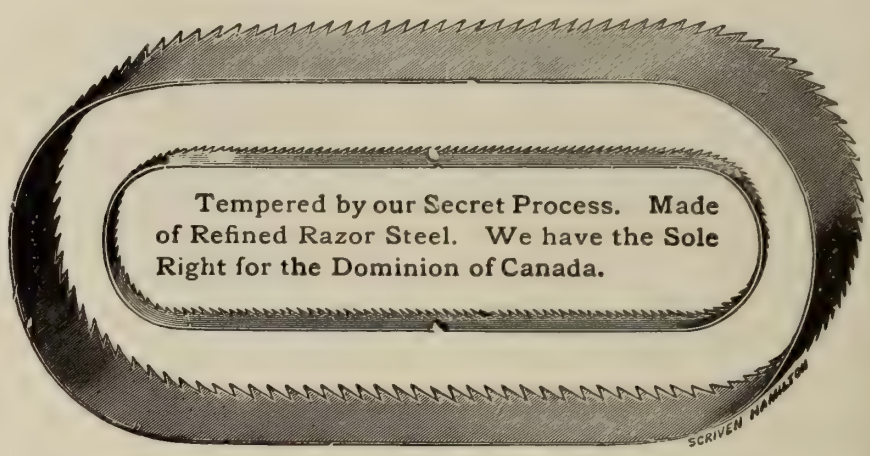
Sales Offices: St. Louis, New York City, Buffalo, Chicago, Evansville, New Orleans, Baltimore, Atlanta, Detroit.
San Francisco, Los Angeles, Seattle, Grand Rapids.

# Maple Leaf Saws

MADE BY

LARGEST SAW MANUFACTURERS UNDER THE BRITISH FLAG

We manufacture Circular Saws Gang Saws Mill Saws Band Saws Cross Cut Saws Buck Saws Saw Setts etc.




We manufacture high-grade **Band Saws** of all Widths and Lengths

These Saws are made of Refined Razor Steel, and Tempered by our Secret Process; for Fine Finish and Temper are not excelled.

**"Maple Leaf" Saws** are the best-tempered saws made

We are the only manufacturers in the world who export Saws in large quantities to the United States

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## Wood-Working for Amateur Craftsmen

"Written So You Can Understand It" By IRA S. GRIFFITH, A.B.

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This book was especially designed to cover every essential step from the A B C to the X Y Z of woodworking. The chapters dealing with making special articles bring out every cut joint and process used in this important trade, and the proper use and care of tools, working up of materials, etc., are treated thoroughly and plainly.

CONTENTS:

Making Out a Stock Bill—Laying Out Rough Stock—Hand Saws—Sawing with Hand Saws—Planes: How to Set and Adjust the Irons—Squaring Up Mill Planed Stock—Squaring Up Rough Stock—Whetting Plane Irons and Chisels—Grinding Plane Irons and Chisels—Making a Bird Box—Making a Tabouret—How to Make an Umbrella Stand—Making a Magazine Stand—Making a Table—Making a Cabinet.

**A valuable book for either self instruction or use in manual training courses.**

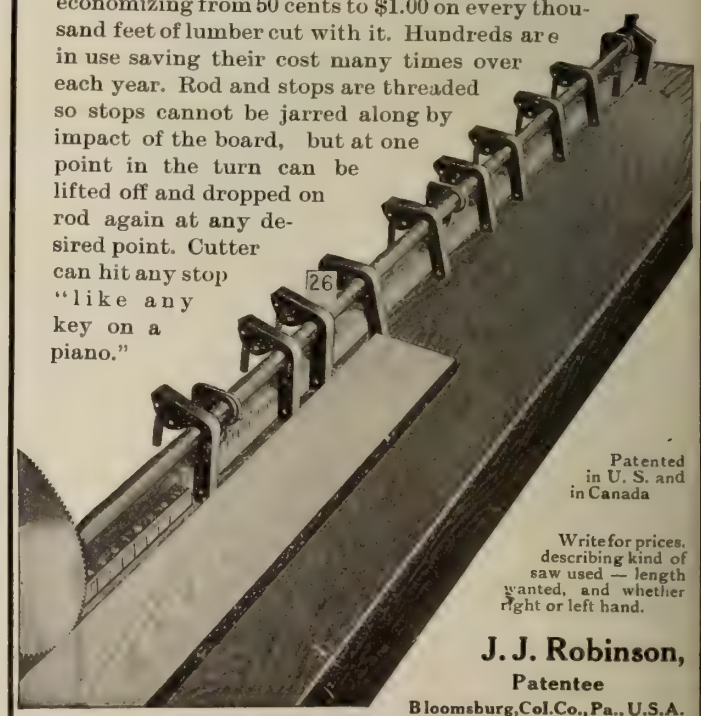
BOOK DEPARTMENT

**Canadian Woodworker**



## Robinson Improved Saw Gage

**Made in Canada**—Saving Duty and U. S. Freights for Canadian Purchasers. Sent on 30 days Free Trial. If not entirely satisfactory, send it back at our expense. This Gage will save Time, Material and Mistakes, thus economizing from 50 cents to $1.00 on every thousand feet of lumber cut with it. Hundreds are in use saving their cost many times over each year. Rod and stops are threaded so stops cannot be jarred along by impact of the board, but at one point in the turn can be lifted off and dropped on rod again at any desired point. Cutter can hit any stop "like any key on a piano."




Patented in U. S. and in Canada

Write for prices, describing kind of saw used — length wanted, and whether right or left hand.

**J. J. Robinson,**
Patentee
Bloomsburg, Col. Co., Pa., U.S.A.

# R. H. Smith Co., Limited

## St. Catharines, Ontario

MANUFACTURERS OF THE CELEBRATED "GOLD COIN" SAWS

**We make Inserted Tooth Saws, Shingle Saws, Cross Cut Saws, Hand Saws, etc., etc.**

**We make every kind of Saw required in Saw Mills, Planing Mills, Furniture Factories, Piano Factories, Carriage Factories, etc., etc.**

We have been manufacturing for the Canadian trade since 1855, and have maintained the same high standard of excellence. Let us know your saw requirements.

# Special Announcement

# Canadian Linderman Co., Limited

at

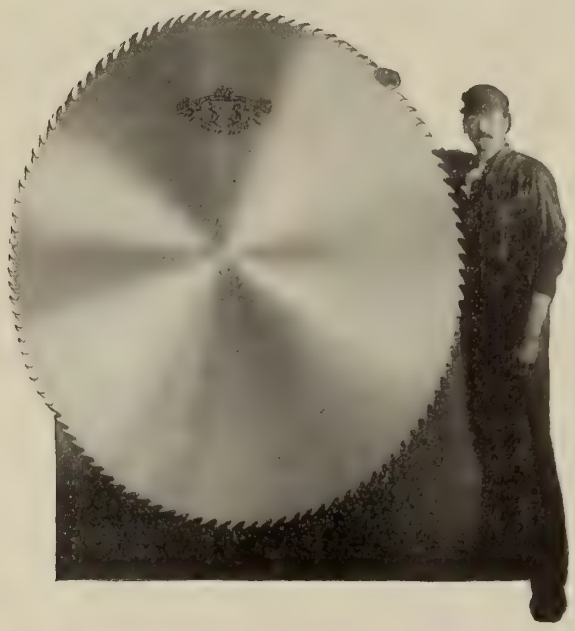
# Canadian National Exhibition, Toronto

During the Canadian National Exhibition Aug. 26-Sept. 9 the Canadian Linderman Co., Limited, Woodstock, will give, daily, a practical working demonstration of the

## Linderman Automatic Dovetail Glue Jointer

in the **Exhibit of H. W. Petrie, Limited, in the Machinery Hall.**

This will afford an opportunity of seeing the advantages of the Tapering Wedge Dovetail Glue Joint.



# Simonds Saws

All there is to a Saw is

**STEEL,**

**SKILL** AND

**STYLE**

THE Steel that is in a Simonds Saw has meant that to supply it we had to build a Steel Mill comprising seven buildings which, with yards, cover 14 acres of land. This much for the demand for Simonds Steel.

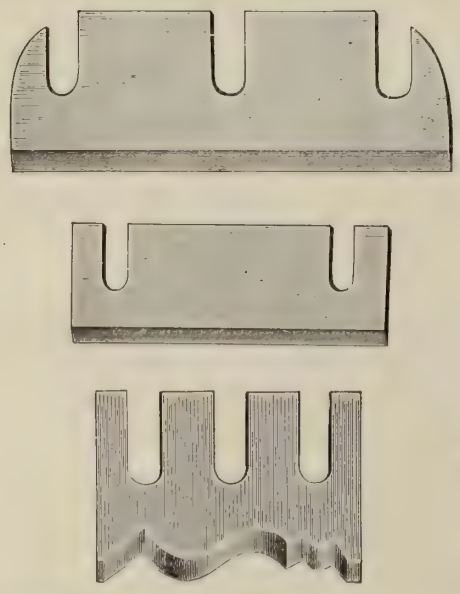
The Skill that is in a Simonds Saw requires for its operation three complete factories; one at Fitchburg, Mass., one at Chicago, Ill., and one at Montreal, Que. The skill is the result of noting and accepting improvements in methods of making Saws, as long as saws have been made in this country.

The Style that is in a Simonds Saw comes from a close study of the style of saws necessary for best cutting results under varying conditions. Years of experience in the manufacturing business has developed an ability to select the right saw for any particular use.

The Price that the Consumer pays for a Simonds Saw entitles him to the benefits of **Simonds Steel, Skill** and **Style**, these three together giving results or service which means profit

If you are in the market for any kind of a Saw, Planing Knife, or File, send your order to our nearest office for our immediate attention.

# Simonds Machine Knives



are made in all styles and any desired size. Welded, Balanced, and Finished with the greatest care. Orders promptly filled. Standard sizes carried in stock.

**Factory in Montreal**

## Simonds Canada Saw Co.

**Montreal, Que.** **Limited**

**Vancouver, B. C.** **St. John, N. B.**

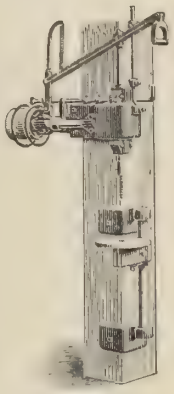
Auto Wheel Finishing Stand

Quality is remembered long after the first cost of any article.

# "Defiance Woodworking Machines"

represent a quality unknown only to those using machines of inferior manufacture.

Our tools are strong and well made for the accurate production of Hubs, Spokes, Rims, Wagon, Carriage, Automobile and **Heavy Auto Truck** Wheels, Wagons, Carriages, Shafts, Poles, Neck Yokes, Single Trees, Barrel Hoops, Handles of every description. Spools, Bobbins, Insulator Pins, Chair and Table Legs, Balusters, Newel Posts, Golf and Hockey Sticks, Shoe Lasts, Gun Stocks, Oval Wood Dishes and for **General Woodwork.**

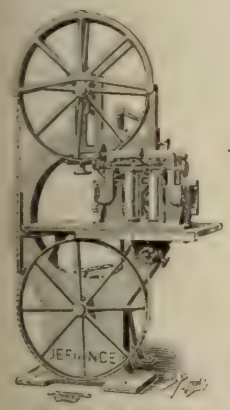

No. 15 Post Borer

**Designed, Built, Patented and Guaranteed by**

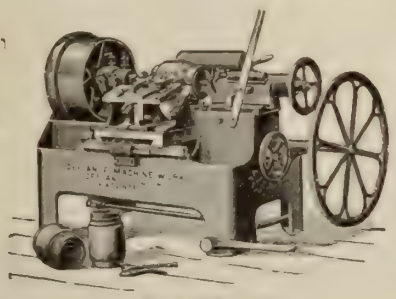
## The Defiance Machine Works,

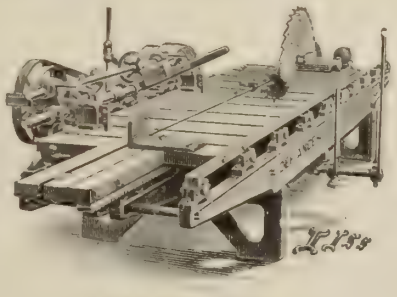
**Defiance, Ohio, U.S.A.**

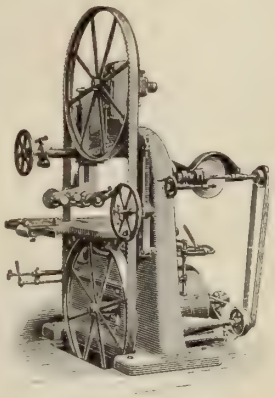
Ask for our new 535 page Catalog  Write for Detailed Quotations

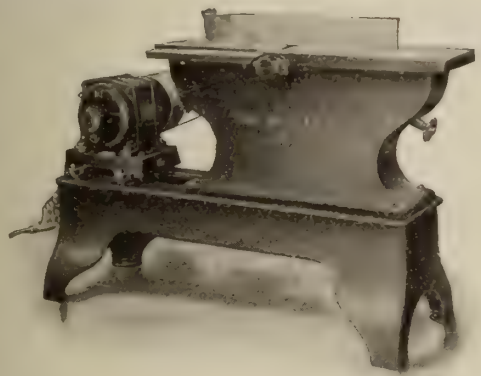


No. 6 Band Re-saw


No. 1 Hub Lathe


No 6 Bolting Saw


No. 4 Band Rip Saw



"The Porter" Jr. 5" Bench Jointer is ideal in any place where work within its capacity is done.

We equip them to your order with Square or Safety Cylinder, with or without Bench, and with or without Motor.

There is a **reason** why we ship so many of "The Porter" machines into Canada. They are **Quality** machines at **reasonable** prices.

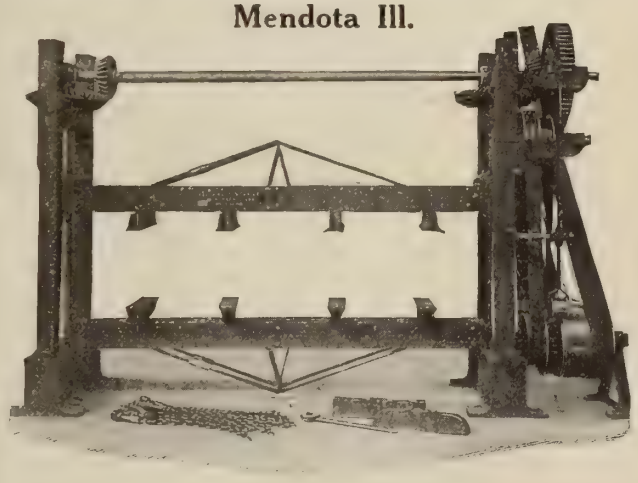
Our catalog J may be of good service to you. Send for it.

## C. O. Porter Machinery Co.,

**Grand Rapids, - Mich.**

## Black Bros. Machinery Co.

**Mendota Ill.**



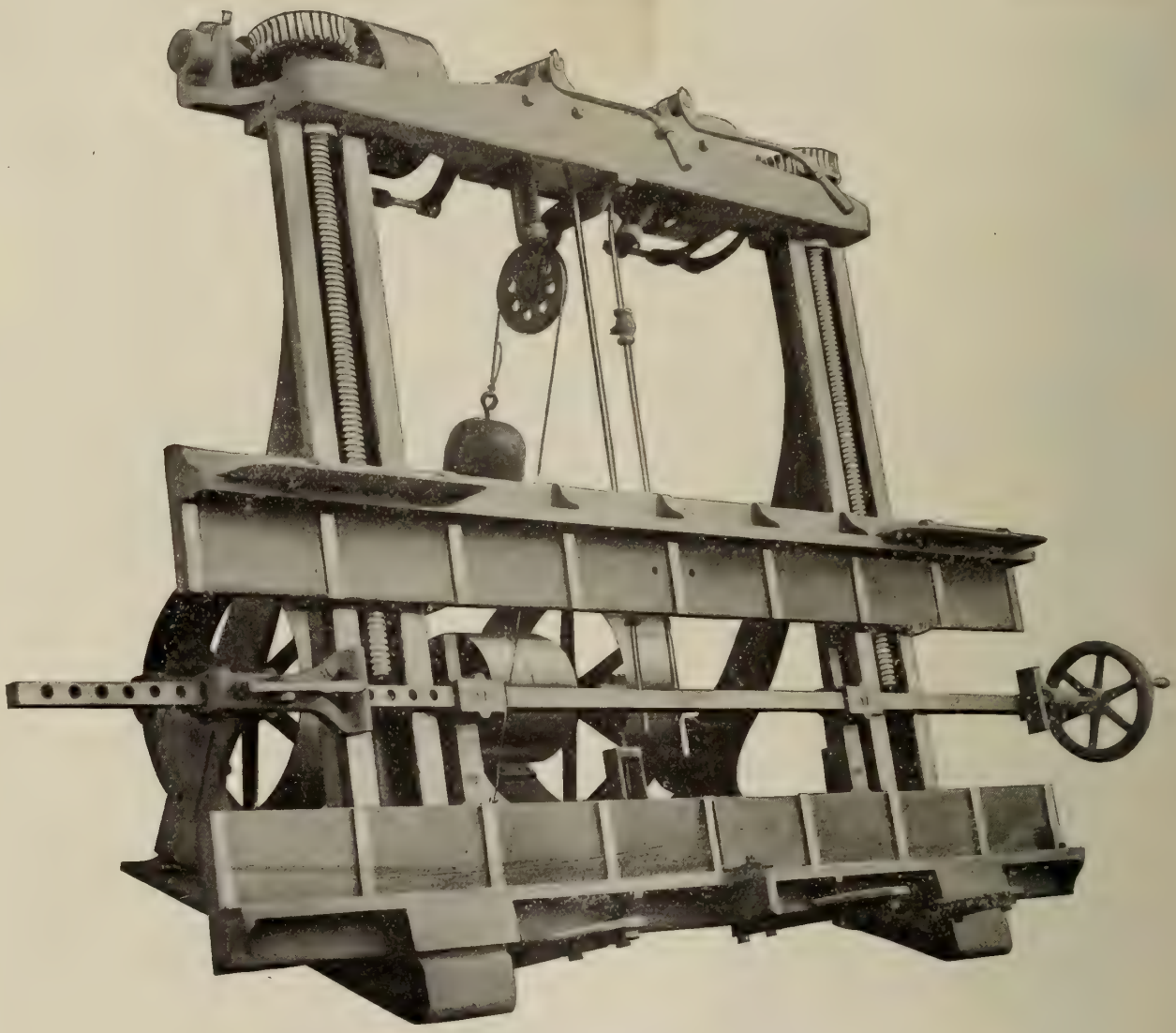
## A Veneer Press with a Reputation

We would like to give you particulars of this machine, because we can show you increased production and a better finished job. :: :: :: :: ::

**Better let us send you a folder about our Veneer Presses**

# Canada Machinery Corporation

GALT Limited



**No. 520 Upright Automatic Door Clamp.**

This is a massive, powerful machine, of great capacity, and particularly adapted to dowel doors or blind mortice doors, heavy or light, hard or soft wood, as the pressure can be regulated according to requirements and class of work.

# Canada Machinery Corporation

GALT, ONTARIO Limited

# Canadian Woodworker

**Canada's Only Woodworking Paper**

Published in the interests of Planing Mills, Saw Mills, Furniture and Piano Factories, Implement and Carriage Works, Boxmakers and Coopers.

The Circulation extends from the Atlantic to the Pacific and covers thoroughly all classes of Woodworkers in this immense territory.

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**Vol. 10 August, 1911 No. 2**


## Openings for Trained Woodworkers—Are You Preparing Yourself to Fill One?

In a certain woodworking shop there was a general purpose rip saw. All the men employed had access to this saw, and it is interesting to note that many of these men claimed to be first class machine men. Yet it remained for a young man from a small town to show them that they did not know it all.

The drive belt had cost the firm about ten dollars a year for belting and repairs. It ran from a 16-inch pulley on the line shaft to a 10-inch pulley on the countershaft, and was a crossed belt. It was crossed in such a way that the edge turned up and rubbed so badly that the joint was continually breaking, this going on for years. No one ever thought of crossing the belt the other way until this young man came to work in the shop. The first time he used the saw he noted the trouble, so he drew the belt off, unlaced it and crossed it the other way, which proved to be the correct way, for the belt never gave further trouble.

Now, why had not these other men thought of doing what this young man did? Simply because this bright young man was always on the lookout to see where he could make improvements.

That happened ten years ago, and to-day this young man is drawing a salary of eighteen hundred dollars per year, and is booked for an increase at the end of the year. While six of those men that were working with him ten years ago are still earning only the current rate of pay per hour.

The success of this man has not been the result of bull-headed luck, as some would say, but resulted from a strict determination to succeed.

Coming from a small town where he had been employed for a number of years in a shop equipped with a very poor set of machines, he lacked the training those other men had received from actual experience. Knowing this, he sought out all the trade papers that had any reference to matters relating to his business, and found out what other men had done and were doing, thus acquiring a large fund of information relating to woodworking machinery, and how to get the most out of a given amount of material. So, step by step, this friend of ours—we know him well—has climbed the ladder, but, as he told us the other day, he had to plug. All have to who wish to succeed. It's worth it. While we are fully aware of the fact that a certain number of men are required to work at machines and on the bench, we are also aware that there are many among them quite capable, with proper training, to fill positions higher up.

There are some really good positions in the woodworking industries that are not all filled by Canadians. Why is this the case when there are so many young men in Canada who are gifted with a natural ability that only needs a little training to enable them to step into the places that are opening every day? Are they lacking in ambition? If so, it is time that they awakened to the fact and began to look about them and learn as much as possible about the work and the best methods of production, and how to handle men, etc.

We have already said that we know this man, whose experience we have touched upon for the purpose of illustrating this article, and for that reason we refrain from going to fully into details concerning his career—he is extremely modest.

## Getting Out of the Rut

We have noticed, and we have talked to men, who have been running the same machine day in and day out, year in and year out, for five, ten and fifteen years. Working away steadily and well, but always doing the same thing in the same old way. We were interested in these people and wanted reasons why, we wanted to find out why men of their apparent calibre were plodding along the path of years instead of branching out into other lines of work in the woodworking industry. Looking for advancement instead of practically resting on their laurels, gained long before. The answer to our question has been, in most cases, the same, "I've never had the chance, they've kept me on here right along and I didn't want to kick." There is the whole reason in the last five words—"didn't want to kick. They were, and they are, contented to work along, just because some person didn't come along and hand them advancement on a silver platter. They didn't like to ask for what they wanted.

Now, men, and most particularly young men, don't wait for opportunity to knock on your door, go out and look. If you see some machine that you think you can run, and by so doing improve its output, go to your foreman or superintendent and tell him so. You will be surprised to see how quickly he will

take you up on the proposition and give you a chance. If you make good, you've won your point; if you don't, you've lost nothing, you just go back to the old machine and watch for the next opportunity.

Try to master as many machines as possible in the shop. Always be ready to jump in, in some person else's place if they are away. Look for ideas so as to improve and multiply your output of work, and it won't be long before your value is recognized by the powers that be in the shop. After that opportunities and good money won't be the elusive fairies that they were before.

## Concrete Floors in Planing Mills

The question of concrete floors in woodworking plants is still a live one, and the objections to it on account of it being too cold in the winter time is gradually disappearing.

We had the pleasure recently of going through the new building of an old established firm, the floors of which are of concrete. We were interested and asked for information and some of the advantages of this class of floor was pointed out to us.

We were told that in the old shop maple flooring had been the rule, but the men found it very slippery, and when it had become worn it was hard on the truck. So when it was decided to build a new shop concrete floor was specified.

We asked the manager if he had received any complaints from the men that it made their feet cold in winter and if they became tired from walking or standing on the floor all day. The reply was, no—most emphatically, no. We suggested that perhaps the men would not care to make a complaint, but were informed that the opinion of the men had been asked for, and without an exception all agreed that it was satisfactory to them.

Much stress was laid upon the fact that so far as sanitary conditions are concerned, concrete has an advantage over wood.

One interesting feature we noticed in this shop was that all the machines had been bedded right into the floors, ensuring firmness, so necessary to running of correct machinery.

The heating pipes in this shop are suspended from the ceiling and give satisfaction.

The information in regard to this subject gathered from the sourse mentioned is interesting in view of the fact that some manufacturers receive so many complaints about cold feet, etc., have gone to the trouble and expense of covering concrete floors in their factories with pine or maple. So it would seem that after all we have only reached the experimental stage as to which is the best floor in manufacturing establishments. Still the question is one well worthy of much consideration and no doubt will continue to receive it.

## The Douglas Fir Panel

Made-up Douglas fir panels are becoming very popular in the west. The best veneers are cut from the old-growth fir, the logs of which run from four to seven feet. Panels made up of this wood have a very pleasing appearance, and the fact that one concern in the west are shipping panels at the rate of four hundred daily is sufficient evidence that they are popular.

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The following letter is one of many we receive and explains itself:

Brantford, July 18, 1911.

Editor, Canadian Woodworker.

Sir, you will find enclosed one dollar for Woodworker to June, 1912. I find it quite a benefit in a good many ways and it has helped me quite a lot. It seems to be more interesting all the time, especially since the geometrical problems have been in it, as they are explained so simple.

Respectfully yours,

HARRIS L. CODE.

118 Drummond street, Brantford, Ont.

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## How Mining Affects the Lumbering Interests

A mining camp, while it delves deep into the earth for Old Nature's riches, derives the land surface of its trees as surely, and as completely as the miners strip the veins of their wealth. A mine is a great consumer of trees. The Porcupine camp is demonstrating this in a most forcible way and particularly has the late lamentable fire brought this to the attention of New Ontario Lumbermen.

After the fire, sash and door, the planing mills and the timber merchants of the North country were deluged with orders for supplies—all to be hurriedly rushed into the camp. The mines that were so unfortunate as to be burned out, and there were many of them, lost no time in getting into shape again. Most of the properties are also replacing their destroyed buildings with much larger ones.

The amount of timber and lumber used by a big mine is somewhat astounding. Practically all of the surface structures are of wood. Towering shafthouses, as high as city skyscrapers, require an immense supply of rough lumber and heavy timbers for their construction. Then the stamp mills and concentrating plants must be built of the best timber available, for the jar of the heavy gravity stamps and the constant shaking of the concentrating tables and inclines produce a vibration that only picked timber can withstand. The big mills are usually constructed of Douglas fir. This wood, coming as it does in such thick and lengthy piece being particularly adapted for mining mill structures where long spans

are made necessary by the peculiar shapes of the machinery used, and where heavy, solid supports are absolutely necessary. The heavy stamps, each descend with a force of three or four tons, and when there are forty of these banging down at once, in their hurculean task of crushing to figure the colossal strain to which the beams and supports of a mining mill are put, and at that, 24 hours a day usually.

The shaft houses too, must be constructed of heavy, weight-resisting wood. On them comes the strain of the hauling of a four or five ton skip of rock from maybe a thousand feet in the earth. The big hoists groaningly bring up their charges from the lowest levelt of the mine to the top of the shaft house where a gigantic crusher grinds up the big chunks of rock into little pieces for the stamps to crush to dust. This crusher is perched right at the top of the shaft house and its colossal efforts are always a strain upon the whole building.

The office building and sleep camps and eating pavilions use up extensive supplies of the more finished lumber, particularly as nowadays in mining camps a separate sleeping room for each miner is becoming the fashion.

One of the biggest items of expense in a mine is the underground timbering. As development downward proceeds the shaft is lined with timber, skip lines, as the wooden tracks in inclined shafts on which the ore cage is hauled up is called, must be made. Then along the drifts shaky looking sections of hanging wall, or roof, must be supported, although in the gold and silver mines of New Ontario the nature of the country rock makes extensive roof supporting unnecessary.

There are so many ways that a mine has in which to use up the output of lumber mills and subsidary industries that a most profitable business in mine supply has sprung up in the north country. Towns too always arise when mining activity begins and a great trade in house building material also gladdens the heart of the north country woodworker.

In Cobalt town, however, many handsome brick and stone buildings adorn the hilly streets of the silver city, but the woodworker man has his recompense there in the interior fittings with which these buildings are decorated. Some of the interior hardwood work to be seen in the best buildings of the silver city is as magnificent as could be wished, and is on a par with the richness of Nature's ore treasures in that disthict.

A couple of the larger mines of Cobalt have shaft houses entirely of steel framework and sheeted with metallic walls. They have been found exceedingly satisfactory, but their cost in both construction and the haulage of the material precludes their use at all but the most prosperous and solidly established mines.

But the return to the purport of this article. The manner in which the mine owners of Porcupine have hustled in their orders to the lumbermen in the north since the fire exemplifies in a striking way the optimism of the camp. Its quick rally from a blow that would have effectually felled most mining camps shows the courage, and the deep seated confidence in the north that the people of Ontario have.

And while the woodworking men of New Ontario deeply regret the disaster that so cruelly overtook their mining brothers, and swept the Porcupine district as clear of forest growth and man-made wooden buildings as the day it was created by Nature, they are doing a tremendous business in supplying the new-risen camp with the material for its reconstruction

## Trade Inquiries

1. **Building laths and lumber.**—A firm of importers having branches in Christchurch, Dunedin and Auckland, would like to act as agents for Canadian manufacturers of such.

645. **Pumps.**—A South African firm of wholesale merchants desires to be placed in communication with Canadian manufacturers and exporters of pumps of all descriptions.

2. **Oil and gas engnes.**—A South African firm of wholesale merchants wishes to be placed in touch with Canadian manufacturers and exporters of oil and gas engines.

3. **Woodworking machinery.**—Inquiry is made on behalf of a native ruler in India for the names of Canadian manufacturers of woodworking manchinery; catalogues and quotations required immediately.

4. **Furniture.**—A Cuban commission agent is open to handle house furniture.

5. **Office furniture.**—A Cuban manufacturers' agent is open to handle office furniture on commission.

6. **Leather belting.**—Cuban firm inquires for leather belting.

7. **Hay fork handles.**—A Manchester firm wishes to be placed in communication with Canadian manufacturers of ash hay fork handles.

8. **Navvy pivk handles.**—A Manchester firm desires to be placed in direct communication with manufacturers of hickory navvy handles.

9. **Oak wheel spokes.**—A Manchester firm desires to be put in communication with Canadian manufacturers of oak wheel spokes.

10. **Chairs, furniture.**—A large Auckland, N. Z., importer of above articles would like to receive Canadian catalogues and best prices. References, National Bank of New Zealand.

11. **Automobiles.**—A gentleman who is visiting Canada on behalf of a well-known English firm of automobile manufacturers desires to interview reliable parties in the Dominion in a position to take up the firm's representation.

12. **Timber.**—A London firm of timber agents is desirous to extending their import trade from Canada; they are also open to hear from owners of timber properties.

# Planing and Saw Mill

## Fitting and Running Small Band Saws

The breakage of small Bands in woodworking plants is the source of much annoyance to the operators of such plants. Among the most frequent causes of breakage we name the following:

The use of saws unsuitable gauge for the work; pulleys being out of balance or out of true; the use of an improper arrangement for giving the saw the required strain on the wheel; not slacking saw after use, thus preventing the free contraction of saw blades on cooling down (they should always be left a trifle slack when not in motion); the joint not being the same thickness as the rest of the blade; the back guide being too close, so that the saw is constantly case-hardening the back of saw and cracking it. The back guide should never be so close that the saw will come in contact with it. It is only placed there as a matter of precaution, and when the saw will not stay on the wheel without being held there with the back guide, there is trouble somewhere, which should be located and corrected.

Saws should never be filed to sharp corners at gullets; they should always be rounded out with a round file or emery wheel.

Working dull saws; feeding work onto the saw deyond its cutting capacity; allowing the sawdust to collect on the face of the wheel, thus causing it to become lumpy and uneven; stopping or starting a machine too suddenly—especially when using a light blade—will almost certainly snap a saw in two.

When a covered wheel is used, it should be frequently examined to see that it is perfectly true on the face, as a covered wheel is much more liable to get out of true than a solid one. We think leather it preferable to rubber, as it can be trued very easily by turning.

Saws should be frequently breasted to keep them perfectly true on the toothed edge, and the teeth of uniform depth. For ripping, the teeth should be filed perfectly straight across; but where rip and cut-off work are both done on the same saw, it is well to file the teeth a trifle flemming. Run as narrow a set as possible, but always have enough to clear the plate and prevent it from binding in the cut, as this would surely cause the saw to crack. Soft or pitchy timber requires more set than timber that is free from pitch. Hard wood requires the least of any.

All band saws having teeth of sufficient size to admit of swaging should be fitted full swage. There are many kinds of swages used for this class of saw fitting, and with due care any of them can be used with very good results. The bar and hammer, and the puset have, however, almost entirely gone out of use in the swaging of band saws, except where the upset is used in connection with other swages of the roller style. We think every band saw filer should have one, as they are very useful in case the saw runs onto a stone or gravel, and a little more spread is needed than can be obtained by one operation of the roller swage. In a case of this kind the upset can be used to good advantage by placing it on the point of the tooth, when, with a few light blows of the hammer, the point of tooth can be spread a little, and at the same time made thicker. Thus one application of the roller swage will draw the point of the tooth out sufficiently to give a good full swage. The saw should be kept perfectly true on the cutting edge, and the points of uniform width throughout. To regulate the width of points, we recommend the use of a "shaper," as it gives a better and more uniform shape to the teeth.

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## A Circular Saw Trouble Extraordinary

By James Beatty.

A great deal of mystery surrounds the trouble we once had with a circular saw. I am givng the fact and particulars as the case was most unusual.

We had received a circular saw from a firm who had always made our saws. The style and make of which was "Diameter 18"—gauge 13—with nine point to the inch. It was slightly hollow ground. Speed of mandrel being 2,000 R. per M.

The collars were four inch with cone centres and the shafting and everything in connection with it was in perfect running condition.

When me hung this saw on the mandrel we could see at once that it was not going to answer. It wobbled so much, however, we allowed it to run a few minutes to give it a chance to settle, but on finding that it was not likely to ever do so we sent it back to the maker with information as to how the saw acted. Our plant was well known to the superintendent of the saw works so we—and for that matter so did he—thing the difficulty could easily be overcome. The saw was returned to use the next day only to act more strangely than ever. We phoned the superintendent who offered to send a man down. In due time he came and gave our outfit a good overhauling but finding that the speed, and other conditions satisfactory, decided to take the saw back to the works. We may as well say right here that this man was confident that he knew just what to do with that saw, but that he did not was proved when he brought it back himself and fitted it on. Imagine if you can his suprise when it was seen that it was worse that before.

All this is only preliminary to the strange part of this saw trouble and leads us up to the point still unsettled. We had another saw bench in the shop exactly the same as the one we had been trying the saw on when someone suggested that we give the saw a trial on this bench. We did so and our troubles were ended.

New we would like someone to explain this keeping in view that both saw benches were exactly the same; also mandrel and speed; also neither mandrel became heated. It is well to say here that all the saws in the shop amounting to nine or ten, and ranging from ten to eighteen inch diameter could with the exception of this one particular saw be used and often were with satisfactory results on either mandrel. What was the matter with this saw. Sup-

posing we could not have made the exchange or had been two hundred miles from the saw makers instead of walking distance, how much greater the trouble would have been and it is because we know that some of our friends can throw light on this matter and offer some good advice on what to do in a case of this kind I have related all the facts in connection therewith.

Will someone tell us what was the matter with this saw.

### Modern Devices for Grinding Wheels and Machines

The Norton Company of Worcester, Mass., have just issued a splendid book with illustrations and suggestions showing how grinding wheels can be equipped with safeguards; also giving information and cuts that explains the correct methods of mounting wheels and the speed of same, together with much valuable information concerning how to keep grinding tools in the best condition.

We take pleasure in recommending this book to all machine hands to whom it will be sent free on request.

### Increased Use of Hardwoods in Millwork

To enlighten one's self on this subject all that is necessary is to go through some modern planing mills when they are at work, or have a talk with a progressive planing mill man who is doing considerable general millwork. It will be found that hardwood to-day is one of the most important items both in the form of lumber and of veneer.

Every planing mill of any magnitude must have its veneering department, and practically all the veneer used is of hardwood variety, and there is going with it now a greatly increased quantity of hardwood casing and base and stair work and panels. In fact, everywhere one turns there is an increased use of hardwood in the planing mills as well as in the door factories themselves.

### A Right to Your Own Good Opinion

Cultivate a good opinion of yourself, not by shutting your eyes to your weak points, not by lowering youf ideal to meet conditions, but by constantly eliminating those qualities which tend to lessen self-respect. The world gives its confidence not to the blusterer, nor to the braggart, but to him whose manner proves his trust in himself.

### Why Lumber Stains

By E. E. P.

Staining of lumber is always caused by stagnation of the sap or water in the cells of the wood. So long as the tree is standing, and, as we say, alive, the movement is, of course, continual. When the tree is cut, the action ceases. If the stock is piled so that evaporation is continually taking place on its surface, the movement of the sap continues and no staining can take place any more than can the animal life in it stain a moving stream of water. It seems to be absolutely the motion of the water in the cells that prevents staining.

The reason stock dries outdoors, and faster than under the shed, is on account of the freer circulation of air, aided more or less by the sun. After the stock has been partially dried, water will not condense and gather on the outside as on green stock, and it has done, value of species and markets.

the same effect in depositing water on the wood, if it is allowed to remain there, relative to staining, as in the original sap. Staining from the ground is caused by the moisture rising and its impact on the wood, which prevents drying. To understand this, we should have in mind that moisture in the air, as it is condensed by lowering of temperature, is held like a miniature soap bubble; the impact of these, as the fog on a window pane, brings the visible moisture to water. This effect is noticed particularly in staining. Throw steam, as it becomes a visible vapor in air, against a board, and the water forms by impact, running from the board in a continual stream.

The water from the condensation of steam will stain stock, just as water formed by condensation from the air, as it would absorb and take up starch from the wood. Another effect obtained by piling stock in the shed or under cover is, in climates where there is considerable humidity, the stock, cooling down at night, will absorb moisture in the middle of the day from the heated, humid air continually blowing against it. This causes a great amount of checking, the end of the wood drying so fast that the tension becoming great, the stock splits in the centre, the continual change of temperature and moisture from night and day and changing of the seasons, frequently, in a heavy plank, running two or three feet from the end.

If stock is to be piled under sheds, it is better to pile in one single tier raised two feet above the ground. It might be possible, if we wished to pile stock under the shed, to pile it in this manner with little or no staining, at certain seasons of the year. At other times, when the air has no drying capacity, such as early in the spring, late in the fall or midsummer, it is not so certain but that it would need the small amount of sun it gets to prevent staining.

### Lumber Used by Agricultural Implement and Vehicle Manufacturers in Canada—1910

Statistics of the lumber used have been received from 162 companies, consisting of the Agricultural Implement and Vehicle Manufacturers of Canada in six provinces, by the Forestry Branch of the Department of the Interior. 76,474,000 feet of lumber were used worth $2,513,265 or an average cost of $32.86 per thousand. Ontario used nearly 90 per cent. of the total for the Dominion; Quebec purchased 6 per cent.; Manitoba, 4 per cent. and Nova Scotia, New Brunswick and Prince Edward Island used very small amounts. Woods used in these industries require strength and durability which is shown by the large amount of maple, elm, oak, ash, birch and hickory that were used. Of the native woods, cherry was the most expensive at $104.00 per thousand, and ironwood the cheapest at $15.00 per thousand. Mahogany at $120.00 per thousand, was the most expensive of imported woods.

The species of woods having the technical qualities required by these industries at present grow only in small quantities in the agricultural and farming districts of Canada. For this reason the supply is rapidly becoming diminished so that unless steps are taken to reforest or conserve the production, we must depend more and more for our supply on the United States. The fact that the woods necessary for the proper building of agricultural implements cannot be secured in any quantity in Canada tends to increase the cost of manufacturing in Canada.

# Noticed on the Editor's Travels

### Maybe You Never Thought of This

Passing through a shop a few days ago we noticed a man engaged in filing the planer knives. He was doing this like a good many do, i. e., pushing the file from the body forward. This is a sure way of getting cut and it so happened that on nearing this man a little later we found he had just sliced off the tip of one finger. We offered our sympathy which was accepted as was our advice that a better way to hold a file when filing planer or jointer knives is to grasp the handle by the left hand and the other end by the right, then pull the file toward the body. This gives one absolute control of the file and better and quicker work can be done. Also the danger of getting cut is reduced to a minumum.

### Wire as a Shield Instead of a Board to Protect the Rip Sawyer's Face and Eyes

We have seen many methods adopted to prevent the sawdust from a rip saw reaching the face of the sawyer but one we saw the other day has them all beaten forty ways.

It consisted of a frame about 12 x 18 on which had been stretched a piece of wire screen such as is used for fly screens. The frame was suspended by sash core which passed over pulleys fastened to the ceiling joist and could be raised or lowered as desired.

The advantage of this kind of shield, over the one generally used, namely, a piece of board nailed to a strip, are that the sawyer can see his work and the man who is tailing for him. Also he can swing it into any position he may wish.

It is true the dust will, if wet, cling to the wire, but a slight shake now and again will remove it, so that can hardly be considered an objection. We are certain that if given a trial in a mill where no blower system is installed it will be found satisfactory.

### Great Activity in the Interior Finish Trade

Mill men who are making a spemial feature of interior trimmings are very busy this season, and while quarter cut white oak still seems to be the leading wood used, red oak both plain and quarter cut, is in fair demand as is also ash, birch and mahogany.

In some places visited Georgia pine and cypress are the leading wood used, but as already stated, quarter cut white oak is well to the front for house trimmings, and is not likely to be displaced by any of the other wood mentioned, where fine and comparatively cheap interior finish is required.

### A Tribute to a One-Armed Machine Hand

We called at a planing mill a short time ago and asked for the foreman. When he was pointed out to us we found him to be a one-armed man.

Later we learned that besides directing the work of the other men he runs the matcher—which by the way is a fast feed of the latest make. And the way in which he puts the planer knives in the cylinder, sharpens the side cutter and adjusts them in the shimmer head is nothing short of being marvelous.

He also mends belts, files saws when the filer is busy, and does three jobs that fall to the lot of a machine-hand. Not so quickly perhaps as a two-armed man could do it, still remarkably fast for one so handicapped.

This man had the misfortune to lose his left arm over twenty years ago, and the incident affords a striking example of what a man can do when possessed with a determination to succeed in making a living for himself and family and puts to shame those men so frequently seen going about selling court plaster or lead pencils. Their excuse for trying to make a living in such a manner is that they had met with an accident slight in comparison with the one we have written about.

### This Would Be Funny Were It Not For Its Pathetic Side

We were about to step into an office to interview the proprietor but gave way to a blind man led by a small boy. After a few words with the young lady in charge of the office he was invited to a seat in a side room. It was our turn now and we handed our cards to this pleasant young lady who after reating it said, "Mr. B—is not in at present and a blind man who came in just before you is waiting to see him too. Would you like to wait?"

### Pulleys Out Of Line

We have often noticed belts rubbing hard against the pine in the shifter. This is mighty hard on the belt and shows that the pulleys are not in line, and it is not always the line shaft that is in fault either but the machine may be out of line—as was the case in a shop we called at a few days ago.

The man in charge of a certain machine had just finished repairing the driving belt and we saw him making great efforts to put it in. It was too much for him however so he asked us to help him. We suggested that the belt was too tight. He replied that he thought the two of us together could get it on. We got it on alright but the pull was so great that the machine was jerked out of its former position. Naturally the belt ran to one side and hard against the pin. When this attracted the operator's attention he explained that when that pin was worn out he could easily put in a new one, but in the meantime, what about the belt. It's difficult to understand how any man could be so careless, but you meet them sometimes.

### Every Tool In Its Place

An improvement on the ordinary tool board used in factories would be to have it made of some light material, preferably white pine, so that the outline of the tools to be placed upon it can be traced in black paint. This shows at once where a tool belongs and aids greatly in keeping the shop in order. When the board gets greasy or dirty it takes but a few minutes to repaint it. This can be done at

night and the black outline may be put on in the morning without interfering with the placing of tools.

### A Belt Shifting Wrinkle

The ordinary belt shifting gear used in a saw mill usually consists of two upright iron rods fixed on a cross-bar operated by a lever. If this arrangement is in constant use the edges of the belt often become twisted and damaged and its driving power reduced owing to the deal pressure of the belt forks at a limited point, says the Timber Trades Journal.

Instead of using two iron belt forks much less damage is done to the belt if two pieces of wood, say 12 in. long by 6 in. deep, are fastened to the cross-bar, as when the belt is shifted the pressure is distributed over 12 in. of its edge instead of being concentrated to one spot, as is the case with stationary vertical rods. Another plan is to make the belt forks of hollow porcelain rollers, and allow them to revolve when the belt is shifted, which will reduce the friction considerably. This may appear a simple matter to that count in these days.

### New Methods Worth Investigating

Have you ever noticed the way in which some men receive a suggestion from a fellow-workman? There are some who always take a suggestion, no matter in how innocent a spirit it is offered, as a personal reflection on their own knowledge. It is a little strange, when you stop to think of it, why this should be. Nearly every one is anxious to do his work in the best and quickest way he knows, and what if some one else does put you onto the kink that makes it easy? If there were no interchange of ideas among the woodworking fraternity there would be but little advance, because the improvements that are developed from time to time would become merely local ones. While it does not pay to adopt everything that comes along, still it is always wise to investigate the new methods that are called to your attention from time to time. Otherwise you are liable to miss some of the short cuts for doing more and quicker, as well as better, work, which is generally reflected in the pay envelope of the mon who causes the saving.

### The Outlook for Business and Short Chats with the Manufacturer

J. H. Redick, Trenton, Ont.

Mr. Redick confines his operations to the manufacturing of sash, doors and blinds and indoor furnishings. He has some good machines for this purpose and is kept busy supplying Trenton builders. Mr. Redick uses electric motor power throughout and dates his real success in business from the time he first installed the system, and it will interest those mill men who may be contemplating installing the same to know that last year (1910) was the only year than any expense was incurred in desposing of shavings and that was owing to the fact that much matching and planing had been a part of the season's work.

The sum expended was one dollar and seventy-five cents for cartage.

### Trenton, Ont.

Mr. W. W. Young, builder and contractor, of Trenton, informed us that business with him is good. He has some good contracts on the way, one of which is extensive alterations to the Gilbert House.

### The Oshawa Interior Fittings Co., Oshawa, Ont.

The fact that this firm are well to the front in the woodworking industries of Oshawa is proven by the manner in which they are improving their plant and general equipment.

This summer an addition 50 x 100 feet three storeys high of solid brick has been built and it will interest mill owners to know the floors are concrete. It is well lighted and the heating arrangements are perfect. This of course is necessary as the firm make a specialty of office and bank fittings as well as sash and door.

At the time we called some work was on the way for Mr. J. C. Eaton's private office, Toronto. This gave us an opportunity of seeing the matching of veneers carried out in a scientific manner; also some fine inlaid work was on the way.

A well planned turning room is another feature in this plant. Some splendid specimens of Phillipine walnut veneer were seen here. This wood, remarkable for its grain and color and where better known to the trade, will no doubt come into general use for the purpose of inside finish and office fittings and will also find favor with the manufacture of the better lines of furniture.

### The Kingston Planing Road Planing Mill, Toronto

This is a particularly busy place where they manufacture mill work of all kinds, such as sash and doors and all lines of interior finish, and pay much attention to the high grade veneer work, as was to be seen by the excellent finish of their stock or doors ready for shipment. First class workmanship and the best of material accounts no doubt for this firm's popularity among builders and other consumers in this district.

### Gill and Fortune, Trenton, Ont.

This firm have a fine plant for the manufacture of lumber, flooring, sheeting, etc.

They have some good machines and use the motor drive which is giving entire satisfaction. Business is good with them and is likely to remain so up to late fall.

### Iugnett and Cottrell, Trenton

This firm is composed of two of Trenton's brightest business men and are engaged in building operations on their account and also engage in the manufacturing of builders' supplies and office fittings, etc.

The products of their factory are not all consumed in Trenton, but are shipped to many outside points in Ontario.

They have plenty of yard room and keep a good stock on hand. The machinery is of the best and latest kind and is driven by single motor. They find it to be a cheap power in operating a planing mill.

This firm are very busy and expect to be so right through the present season and coming winter. They enjoy a deserved popularity among the trade owing largely to the fact that both attend strictly to business, one taking care of the outside interest, the other giving his whole time to the mill work.

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## QUALITY SAVING AND CAPACITY

Over your present method or machine, are very essential in determining the installation of improved methods.

The quality of your product is the most important, but when you can get quality and a saving of considerable labor, lumber and glue it means a reduction in the cost of your product.

In jointing lumber together on the

## LINDERMAN AUTOMATIC DOVETAIL GLUE JOINTER

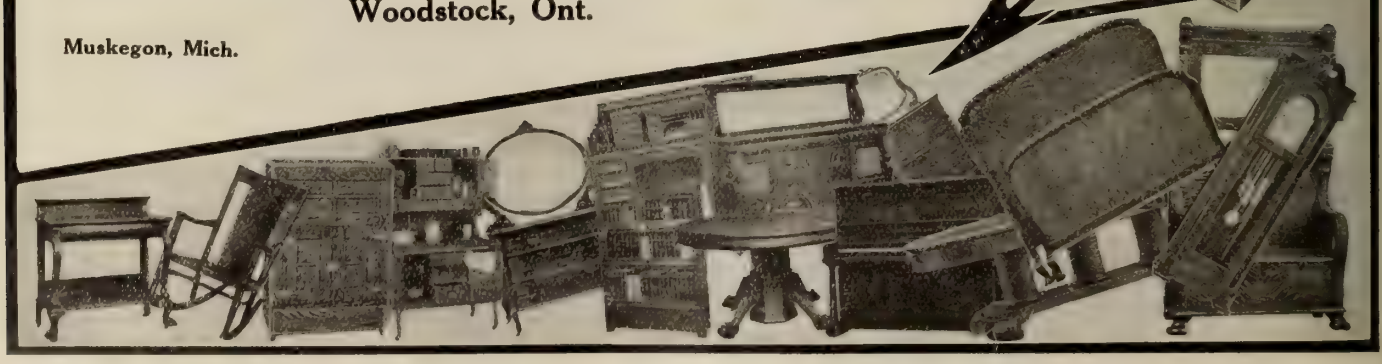
it does not take a mathematician to figure the enormous saving it accomplishes, because it takes the lumber from the cut-off saw, and completes all the jointing operations and sizes the panel to the exact width without waste automatically at a cost of no more than it does to straighten the edge or put a "V" tongue and groove on the lumber.

As to quality, let us tell you how it is accomplished with the *Tapering Wedge Dovetail Glue Joint.*

## Canadian Linderman Co., Ltd.

**Woodstock, Ont.**

**Muskegon, Mich.**



# The Carpenter and Builder

## An Attractive Little Home

The architect's drawings shown on this page can be easily worked from to build an attractive and cosy little home for a small family.

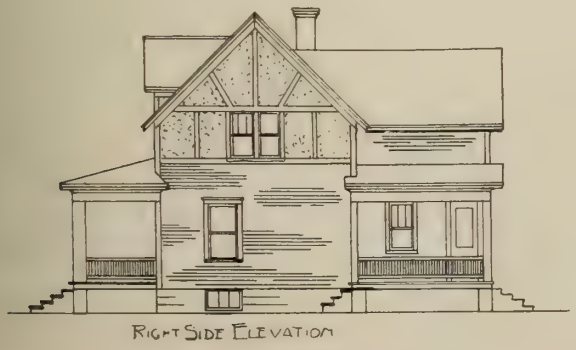
The first floor plan shows a living room and kitchen with front and back porch, the second floor plan showing two bedrooms, hall and clothes closet.

The busy housewife appreciates the advantages a back porch affords as a place where they can retire to

FRONT ELEVATION

do a certain part of their daily work, and at the same time desire the benefits of the fresh outside air.

This style of house would never become old-fashioned if a coat of paint of a different tint from the one preceding it were applied from time to time, and in the selection of tints and colors the owner is not obliged to follow the example set by his neighbor, but



RIGHT SIDE ELEVATION

can always select his colors with a view to preserving an atmosphere of home-like charm.

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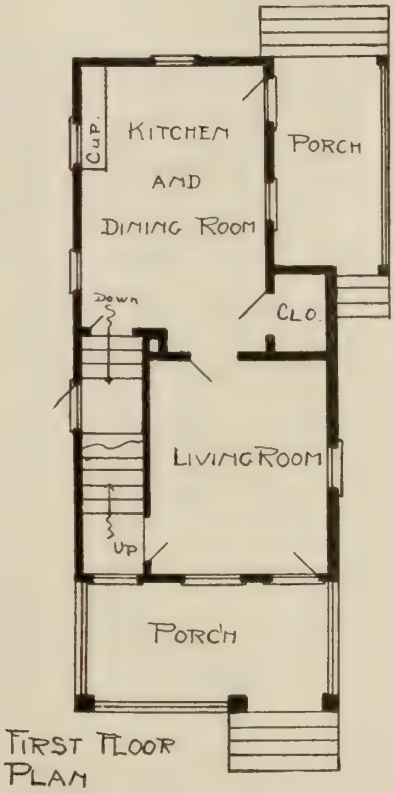
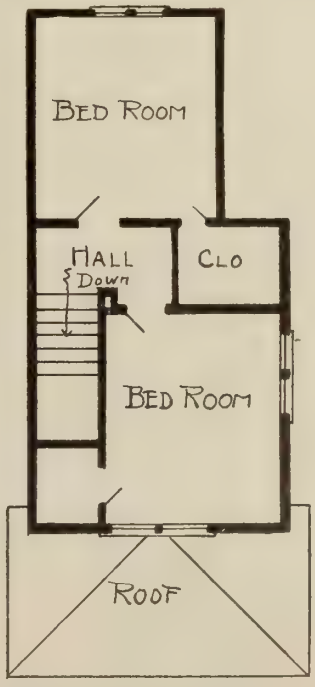
## Architects Description of Plans

A small four-room residence, 16 feet wide by 32 feet long. The first floor has a living room 11 x 13 ft., kitchen 11 x 15 ft., a closed stairway from the living room to the second floor and to the basement from the kitchen with a grade door. An 8-foot front porch and a 7 x 12 rear porch. The second floor has two




FIRST FLOOR PLAN

bed-rooms with two large closets. This house, finished in yellow pine, can be built for about $1,400




SECOND FLOOR PLAN

including furnace. Cost of plans $8.00. Bill of material $4.00.

### Some Terms Used in Carpentry

Bay Window—Any window projecting outward from the wall of a building, either square or polygonal in shape, and commencing from the ground.

Oriel Window—The same as a bay window, only that an oriel window is built on projecting brackets or corbels instead of starting from the ground.

Bearing Wall or Partition—A wall which supports the floors and roof in a building.

Basement—The part of a building below the first floor.

Batten—Small strips of boards put over the joints of larger boards to keep out the weather.

Batten Door—A door made of flooring or other boards fastened to cleats or cross strips.

Back of a Window—Between the bottom of the sash and the floor.

Balcony—A projection from the fact of a wall, supported by columns or consols, generally surrounded by balusters.

Attic—A low storey at the top of a building under the roof, generally has a few outside windows for ventilation.

Area—The superficial contents of any figure. An open space or court within a building. Also an uncovered wall space around the basement window to give light to the basement.

Arcade—A range of arches, supported either on columns or on piers.

Arch—A structural member rounded vertically to span an opening. Generally speaking, arches are covered. Mechanically, an arch may be considered as any piece or pieces arranged over an opening in a wedge-shape, the top and bottom being felt.

Apron—The finish below a stool of a window.

Alcove—A large recess in a room, generally separated by an arch.

Abutment—That part of a pier from which the arch springs.

Brace—An inclined piece of timber, used to stiffen the frame work of buildings.

Bracket—A projecting ornament carrying a cornice.

Bridging—Pieces cut between joist and studding to stiffen them. Floor joists generally have cross bridging.

Butt Joint—Where the ends of two timbers butt together.

Capital—The upper part of a column, etc.

Casement—A glass frame that is made to open by turning on hinges at its side.

Chamber—When the edge or corner of any work is cut off 4t an angle of 45 degrees.

Coffer—A deep channel in a ceiling.

Collar Beam—A beam spiked to the rafters to stiffen them.

Collonade—A row of columns.

Column—A round pillar. The base is the part on which it rests, the top part is called the capital and the centre of she shaft.

Cornice—A projection at the top of the wall.

Corridor—A long gallery or passage.

Countersink—To make a cavity for the reception of bolt or screw heads, so that they will not project beyond the face of the work.

Court—An open place in the centre of a building or back of a building.

Cove Ceiling—A ceiling springing from the walls with a curve.

Lattice—Any work of wood or metal, made by crossing each other forming a net work.

Copula—A small room on the top of a roof.

Dormer Window—A window in a room in the roof and projects from it with a valley on each side.

Dovetailing—Fastening boards together by letting one piece into another in the form of an extended dovetail.

Dowel—A pin let into pieces where they join.

Drawing Room—A room appropriated for the reception of company.

Eaves—The lower part of the shingles over the wally to throw the water off.

Fascia—A flat board generally nailed to the ends of the lookout or rafter.

Flashing—Pieces of metal let in to the joints of a wall so as to lap over other pieces, around chimneys or any rising part to prevent leakage.

Flute—A concave chimnley.

Framing—The rough timber work of a house.

Frieze—A board nailed on just below the projection for the cornice; a bed mould is generally put in an angle to cover a joint, as between the frieze and planceer.

Furring—Flat pieces of boards used to bring an irregular surface to an even surface. Furring strips are also nailed on brick walls to protect the plastering inside.

Gable—When the ends of a building are carried straight up to the peak of the rafters.

Gain—A groove in a member to receive the end of another.

Girder—A large timber or iron beam, used to support joist or wall overhead.

Grounds—Pieces of wood nailed to the studding or brick work to nail the base to; they are also nailed around openings to stop off the plastering. The plastering will be even with the outside of the grounds.

Gutter—A channel for carrying off rain water.

Hanging Stile—Is that part to which the hinges are fixed.

Headers—When framing openings around stairs, etc., headers are fremed in to carry the short joist.

Hip Roof—A roof which starts from all four sides.

Jack Rafter—A short rafter from the hip to a valley, or from the plate to the hip.

Lintel—The horizontal piece of timber or iron over an opening to carry the weight of the wall above it.

Loggia—An outside gallery above the ground within the building.

Mullion—The perpendicular piece between the two windows.

Pedestal—The square support of a column.

Planceer—That part of a cornice which projects out from a building.

Plinth—The square block at the base of a column.

Reveal—The part between the front of a wall and the frame.

Ridge—The top of a roof.

Scribing—Fitting woodwork to an irregular surface.

Shed Roof—A roof where all rafters slant one way.

Shore—To put in temporary timbers to support a building while it is being repaired.

Soffit—The lower horizontal face of anything.

Weather Boards—Outside siding boards that lap over each other.

Wainscot—Either wod, plastering, paper or metal to line the side walls of halls, dining room and kitchen of buildings a certain height.

Vestibule—An ante-hall built at the entrance of buildings to protect the room from having cold air coming direct to the room.

### Building Permits Still Increasing

Building permits issued in twenty-nine principal cities of Canada during the month of July show a net increase of 23.7 per cent., or $2,411,126 in actual figures, over the corresponding month of 1910, according to the monthly table published by the Financial Post of Canada. The increase is especially gratifying, says the Post, when it is observed that eight cities register a decline, Montreal to the extent of $2,327,599, or nearly 69 per cent. below July record in 1910. Port Arthur, too, has remained steadily under the 1910 record, showing a drop of $142,975, or about $2 per cent. decrease. The other losses are shown by Halifax, Peterboro, Stratford, St. John, St. Thomas, and Lethbridge, the last named having had its progress impeded by labor troubles for some time past. The tabular list follows:—

| City | 1911 | 1910 |
|---|---|---|
| Brandon | $ 132,230 | $ 19,960 |
| Brantford | 76,287 | 61,825 |
| Calgary | 817,980 | 520,098 |
| Edmonton | 474,909 | 460,066 |
| Fort William | 225,175 | 156,200 |
| Guelph | 28,695 | 7,250 |
| Halifax | 43,350 | 65,150 |
| Hamilton | 285,500 | 268,500 |
| Kingston | 36,151 | 35,818 |
| London | 93,726 | 37,700 |
| Lethbridge | 56,120 | 84,520 |
| Moose Jaw | 309,850 | 81,200 |
| Medicine Hat | 85,275 | 24,300 |
| Montreal | 1,057,761 | 3,385,360 |
| Ottawa | 262,575 | 202,500 |
| Peterboro | 24,340 | 30,725 |
| Prince Albert | 79,225 | 40,100 |
| Port Arthur | 31,500 | 174,475 |
| Regina | 602,115 | 305,030 |
| Saskatoon | 629,125 | 147,275 |
| Sydney | 126,860 | 45,161 |
| Stratford | 10,032 | 16,000 |
| St. John | 28,300 | 77,100 |
| St. Thomas | 19,500 | 21,500 |
| Toronto | 2,786,520 | 1,953,285 |
| Vancouver | 1,108,378 | 639,530 |
| Victoria | 335,375 | 222,290 |
| Windsor | 43,640 | 37,950 |
| Winnipeg | 2,787,100 | 1,065,600 |
| Total | $12,597,594 | $10,186,468 |

### Amount of Paint for a Given Surface

Paint makers usually say two coats of ready-mixed paint for 200 square feet of surface to the gallon. But this is only approximately correct, for all depends upon the character of the surface and the consistency of the paint; also upon the kind of paint, as some paint will go much farther than some others. It is also estimated by some that 18 pounds of white lead will be required to make paint to cover 200 square feet of surface, and which would indicate 18 pounds of lead to the gallon of paint.

### Finishing Hardwood Floors in the Natural

The extent to which hardwood floors are being used in dwelling houses and other buildings at the present day lends unusual interest to the methods of finishing them so as to give the most satisfactory results considering the purposes for which the rooms are to be used.

Oak floors require a filler, if good smooth finish is desired in the natural, no matter what material is used. Maple does not require filling. For oak floors a good mineral paste filler and two light coats of grain alcohol shellac varnish, or in place of the latter, waxing frequently with a good floor wax will keep the floor from darkening. Ordinary floor varnishes or linseed oil will produce darkening. Mineral oils tend less to darkening of wood than linseed oil, but are not to be thought of for use in dwelling houses or public halls on floors, because of the tendency to soil the ladies' dresses. For maple floors three coats of grain alcohol white shellac varnish or repeated treatment with floor wax will not darken the wood.

As to the question about the bleaching of floors that have been oiled and become dark, the only remedy we know of is to remove the oil with a paint and varnish remover and then treat the wood with a strong concentrated solution of oxalic acid or by the use of bleaching powder. The use of the last named, however, is liable to be injurious to the health of the operator, and we would not recommend its use. The oxalic acid solution, while poisonous, is harmless when used with care.

### The Crooked House

On the estate of Earl Dudley, at Himley, Staffs, there is a curious habitation known as "the crooked house." It is altogether out of the perpendicular and slants towards the south end, which is heavily shored up with thick red brick buttresses. These peculiarities are the result of mining operations, the under stratum of the earth in these parts being completely honeycombed. The clocks on the walls, although absolutely perpendicular, as their pendulums testify, appear to be hanging sideways at a pronounced angle. A short glass shelf, one end of which appears to be a foot higher than the other, proves to be absolutely level, while in the tap-room is a table which is apparently slanting, but which if round marbles are placed at the seemingly lower end they roll to all appearances up-hill to the top of the table and fall over with a bump.

### Rail Fences for Pencils

The old-fashioned red cedar rail fences of middle Tennessee now furnish the world's main supply of cedar pencils, according to information received from big pencil-makers who have mills in the Tennessee cedar district. Statistics at hand also indicate that these fences are the sole remaining source from which to make the best grade of smooth whittling cedar pencil so well known to every schoolboy. Descendants of the rail splitting farmers of Abraham Lincoln's time are selling their cedar fences for what their forefathers would have considered fabulous sums. The selling price of such a fence will build four up-to-date wire fences of equal length.

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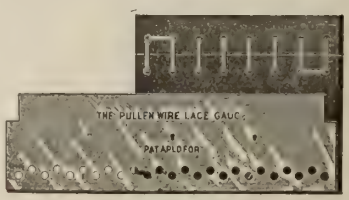


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# Furniture and Veneers

### The Furniture Man and His Veneer

The furniture man's face veneer is one thing and often his plain veneer, fillers and backs are another, and some of the well posted panel manufacturers claim that it is economy to buy them from different sources. However that may be, a different consideration enters into the subject when a man is buying veneer for what might be termed a structural purpose, for utility rather than for its face appearance. The furniture man has a very good instance of this in drawer bottoms, which are not decorative in any sense of the word. Therefore, veneer for this purpose should be bought with a view to its adaptability to the purpose.

Veneer drawer bottoms come in three forms: the single-ply rotary cut veneer, the two-ply built-up veneer, and the three-ply built-up veneer. We may even add another form and say that they come in the form of straight resawed lumber.

In the earlier days of veneering quite a number of drawer bottoms, backs and interior thin stock was made with veneer saws from flitches of cottonwood, poplar and gum. It was an excellent product, but it is too expensive as compared with rotary cut veneer. The best drawer bottom is one made of three-ply veneer glued together, but the cheapest, of course, is single-ply. There is really not much excuse for two-ply stock, because it is not well balanced. It is better, of course, than single-ply, but it would be only a little more expensive to make it three-ply and give the greater strength in a drawer bottom. Furniture men will do well to give special attention to quality in drawer bottoms, even in cheap furniture. It is worth while. It makes an excellent talking point which should enable the salesman to get more for the additional cost of making three-ply drawer bottoms as compared with single-ply. Some furniture men may want to make these themselves, while others who buy them from manufacturers may be able to arrange to get three-ply drawer bottoms cut to size.

In the woods used for drawer bottoms gum ras the lead, and will probably hold it. However, beech has come in quite extensively and is claimed to make an excellent drawer bottom, either in single-ply or in built-up stock. Beech at present is receiving much more attention than formerly in the veneer and basket industry. The basket factories in the beech territory use a considerable amount of it and often it may be practical to get beech drawer bottom stock from basket factories and others cutting common veneer, at an inviting price and thus secure a good bottom without addiing too much to the material cost.

It is predicted that the next few years will see a number of the woods enter into the manufacture of drawer bottoms, among them being yellow pine from the South, especially for single-ply. Yellow pine veneer is very conspicuous in box making, and is one of the cheapest veneer products made. Therefore, it may find its way up from the South into the furniture factory trade. Spruce and fir from the West will also probably work their way over.

It is often worth while for the manufacturer to seek for a combination of veneer, lumber and crating stock in his shipments. Ask the veneer men you are figuring with whether or not they make lumber, furniture dimension, or could supply crating material made from their cores and rough blocks. And here and there it should be possible to develop a connection in which, by combining in the same car shipments of veneer, furniture dimension, and even furniture lumber, one could get a carload combination easier than any other way and thus effect a saving in freight which would be worth while.

Another thing which should be considered in connection with veneers, and which has probably been mentioned before, is the condition of the stock—not merely its condition as to dryness or defects, but the physical condition after drying. One should be careful to see if it is hard, harsh and wrinkly, or whether it is soft and flat.

This veneer is inclined to wrinkle more or less, no matter how carefully it is dried. Thick veneer, sometimes because of the nature of the wood, will wrinkle also, and perhaps needs a little moistening and re-drying to flatten it out. However, most of the trouble in wrinkling may be traced directly to the process of drying. It has been dried too rapidly, handled carelessly, or improperly piled.

Often the handling of stock in drying and piling is nearly equally as important as proper cutting. In fact, the matter of handling and drying is so important that perhaps the best plan of all, where a furniture man uses enough to justify, is to buy the veneer dried on one of the modern dryers, but care should be taken not to get it too dry. It should be dry enough to prevent sap stain and things of that kind when bulked, but ll the moisture does not have to be removed. If the stock is in good bulking shape, is piled in the warehouse until ready for use, and then properly run through the re-dryer, one can be pretty sure of getting veneer in the best possible shape.

For bulking it is perhaps better that the veneer should not be too dry. The dryness itself does not affect the stock, but in the process of getting it too dry, the man at the dryer is likely to make it hard and cause wrinkles and then if it is piled in bulk and weighted in drying out, it is likely to check and split badly. If enough moisture were left in it to make it pliant, it would straighten down and dry much better when it is piled in the warehouse.

In order to be on the safe side, it is necessary to re-dry veneer stock before using, regardless of how dry it was when received and piled in the warehouse. Therefore, any additional moisture in veneer which has been kept in a good shape can be disposed of in a re-dryer, or by keeping the stock in a hot room for a short time or a dry-kiln just before using.—Hardwood Record.

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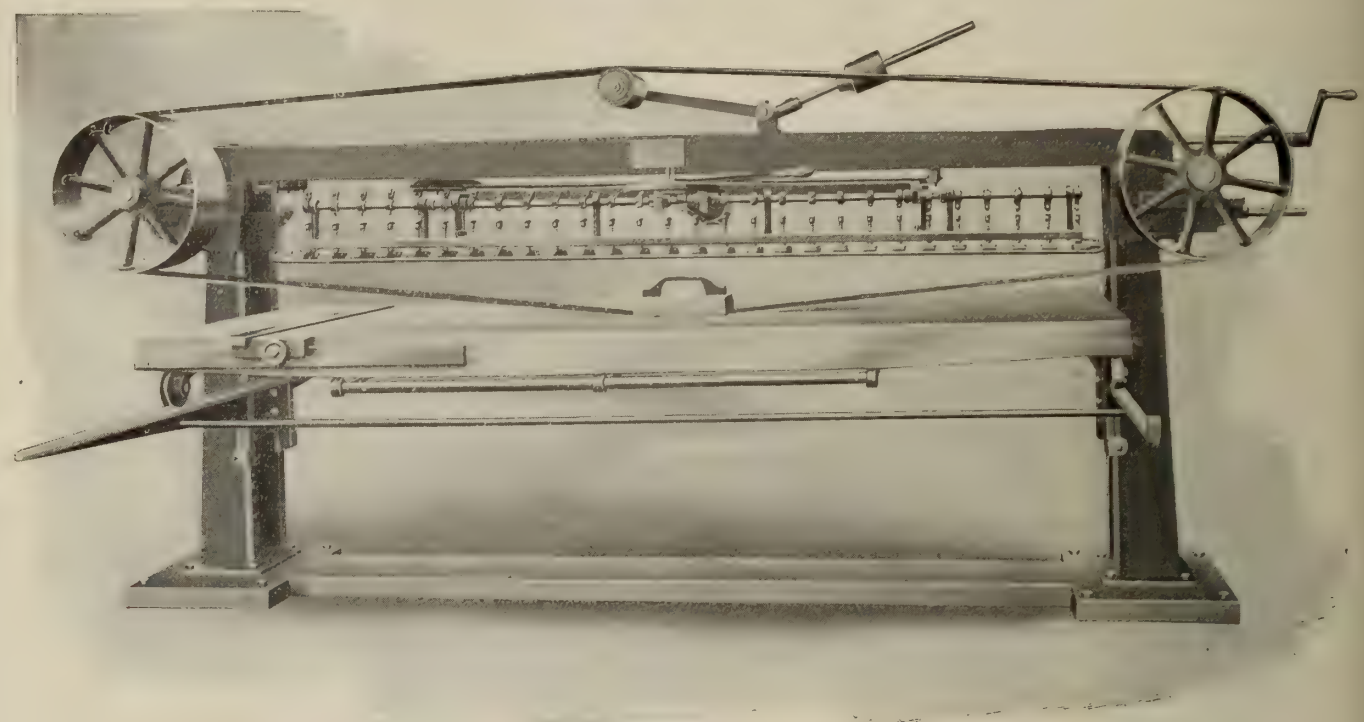
### Veneer

Statistics for the amount of veneer manufactured or used in Canada during 1910, have just been compiled by the forestry branch of the department

## When you Think of Sanding, Think of the Schimmel

# The Schimmel Spiral Belt Sander



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Let us send you catalogue and blue prints of our belt sanders. We can surely supply your needs in the finishing room. Our suspended Model is a wonder in efficiency in the Sash and door, interior finish, fixture and car factories.

The Schimmel is the really efficient belt sander. Not an adjustment necessary in a year's work. Takes any length of stock right from the truck and gives a finish as true as a mirror.

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---

## Schimmel-Reid & Company, Faribault, Minn., U.S.A.

**Manufacturers of Sanding Machinery**

of the interior. Including natural and imported veneer, 92,066,000 square feet, valued at $768,500, were produced or used in Canada in 1910. This is an average cost of $7.47 per M. square feet. Of this amount 90.9 per cent. was native wood and consists of 14 species; the most important of these were birch and maple, which together form over one-half of the total native woods. These were manufactured into veneer in the hardwood belt and were used chiefly for furniture, panel work and vehicles. Elm and basswood are next in importance and together form about one-third of the native wood. These two species of veneer are made by smaller mills in the fruit district, and are used for fruit baskets, pacgages and cheese boxes. Imported woods, $140,687, amounted to one-tenth of the total amount of veneer used. These were more expensive than native woods, costing on the average, $17.48 per M. square feet, and were used for more extensive furnishings. Oak veneer constituted over one-third of the total importations and was used chiefly in the manufacture of medium priced furniture. Tulip was second in importance, forming one-fifth of the total. This species of wood is very pliable, and is used in the curved parts of vehicle bodies and automobiles. Mahongany Spanish cedar and Circassian walnut were used in small quantities and imported indirectly from Africa, the West Indies and southern Europe, respectively, being used for high-class furniture, musical instruments and pianos. Circassian walnut is the most expensive of these, costing ..63.80 per M. square feet. The diminishing supply of beautiful finishing woods is constantly tending to make the use of veneer more general, for in this way a fine and beautiful appearance is given to an article, consisting mainly of cheap and inexpensive base. Cigar boxes in Canada are nearly all made of Spanish cedar, about one-one hundredth of an inch thich, on a gum or tulip base.

### Tables and Chairs

Chairs were unknown in the early Saxon days and a table was given to each person when a meal was in progress, a low stool affair, before which the person sat upon a heap of hay.

The small tables disappeared in the time of Cnut, and square wooden ones—such shape as are often seen in the modern dining-rooms—took their place. These tables were wonderfully carved, in a way which proves the men of the time have had no small skill in that direction. Long benches, likewise carven, were used as seats. In their rude state the benches resembled the forms used in our Council schools at the present day. The benches were covered with embroidery, with which the Saxon dames occupied their ample leisure. The tables, too, were covered with cloths of fine texture. All the material used was woven by the women of the house.

Chairs were used in the thirteenth century—plain, square-backed wooden ones. The tables for the most part were planks of wood laid across trestles—the beauty of carving lavished upon benches and tables in previous years was already a thing of the past.

The Hanoverian period, pre-Victorian, was responsible for the solid type of furniture known as Georgian.

The twentieth century has been well named "the age of progress." It is a wonderful age, truly, lacking only in individuality! We can have furniture and china of all past ages "made to order and experts will declare it faithfully to be "genuine antique." We can get all such furniture—Shetrton chairs, Louis Quinze tables and mirrors, Norman fireplaces, and what not—but characteristic of the times we can get nothing.

### Personal

McLean Snyder, representing the Walter Clark Veneer Company, of Grand Rapids, Michigan, is calling upon the furniture and piano trade, as well as sash and door manufacturers in Ontario. Mr. Snyder is handling a good line and as he is thoroughly conversant with veneers, his advice will be valuable to buyers.

### Hints Regarding Varnish Work

Among the array of advice circulated in a recent publication from Pratt and Lambert, Inc., Buffalo, we find the following pointers:

Blooming. When a varnished surface blooms, that is, assumes a misty or foggy appearance, you can be reasonably sure that there is too much dampness in the room, or, that it is poorly ventilated. The best way to rapair this imperfection, is to rub the surface with crude oil and water, using ordinary waste, first dipped in water, then in oil. The purpose of the water is to clean the surface, whereas the oil should bring back the luster.

Crawling. A sudden change of temperature during the process of drying sometimes causes the varnish to crawl up in ridges, or show furrows. Crawling is also apt to take place when the varnish is applied over a cold surface, or over undercoatings insufficiently dry. If proper precautions are taken, of course, this defect should never occur. To remedy it, the varnish must be sanded down, or removed, and the surface re-varnished.

Sweating. A rubbed finish sometimes turns back to gloss during the humid summer months, and is then said to have sweated. This occurs, however, in the case of a good hard-drying only when the rubbing was done before the varnish was sufficiently hardened. Sometimes this fault may be overcome by re-rubbing, but if you have used a varnish that will never dry very hard, you must re-finish with a hard-drying varnish over the old surface. This can then be rubbed to a dull finish.

Flatting. There are several possible explanations for the deadening or flatting of a finishing coat. If the under coats are not thoroughly dry, they will absorb the finishing coat and cause this deadening. Improper filling on unseasoned lumber, or graining compounds, produce the same result. Another coat of varnish will give the desired finish, if you are sure the under coats are dry and the conditions are favorable.

Cracking. Varnish cracking, when not caused by an inferior varnish, comes from the application of too heavy coats, or may also be due to lack of precaution in observing whether the under coats were sufficiently dry. When the varnish cracks, it must be sanded down or removed, and the work done over.

Pitting. Pitting, or little pock marks, may appear on the varnished surface, if it suffers a sudden change of temperature, or a draft strikes it while drying, or if proper ventilation is lacking. A damp surface under the finishing coats has a tendency to bring about this condition. A pitted surface must be revarnished, as the defect cannot be rubbed out.

Checking. The cause for varnish checking, or exhibiting numerous small cracks, is usually to be found in the fact that the surface has been exposed to sudden cold, or, that a coat of short oil varnish has been put over that of an elastic one. Sometimes checking is caused by very heavy finishing coats. When used over graining color, a varnish may check; due to the graining color not being thoroughly dry. There is no way to repair the damage except by removing the varnish and refinishing.

Blistering. When a varnished surface is exposed to the sun or heat while drying, a film quickly forms over the surface, and the turpentine in the soft varnish underneath forms gases which have no chance to escape, and cause the blisters. Sometimes blistering is due to the existence of dampness or sap in the wood, or dampness in the undercoating. A blistered surface may be sanded down and given an additional coat of varnish,if not too badly blistered. If the varnish coats are blistered from the bottom up, the job must be done over entirely.

Chilling. Complaints are frequently made to the manufacturers during cold weather that varnish has gecome specky, and it therefore useless. This peculiarity, however, indicates no deficiency in the varnish itself, but is the natural result of continued exposure to the cold, and the varnish has become what is known as "chilled." These specks have the appearance of undissolved gum particles, but are in reality due to the congealing of the oil. Varnish should never be applied when in this condition, or when chilled at all, but should be kept in a warm place, near a stove or a steam pipe, until brought back to the natural condition. This process may be hastened by placing the can in hot water.

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### A Cedar Chest—Stock and Construction

For keeping furs, woolen goods, etc., cedar chests or boxes are highly esteemed and they are frequently made by woodworkers for individual use, and are also manufactured for the stores supplying material of this kind.

Cedar is used because it is commonly believed that the aromatic odor given off by the oil of the cedarwood chest will prevent insects from attacking material stored therein. The cedar frequently used for this purpose is the ordinary red or incense cedar.

The stock for such boxes should be well seasoned so as to avoid warping. The interior should not be oiled or varnished. Such surface treatment would seal up the aromatic odor under an impervious layer of varnish or oil and defeat the purpose for which the box is made.

If the box is made of one thickness of cedar the outside may be finished by varnishing and polishing. This is accomplished by giving the wood one or more coats of shellac then rubbing it down with a rag covered with shellac and oil which will give a very good finish.

Another way of treating the surface is to lightly sandpaper the first two or three coats of shellac and then rub the final coat with oil. Sometimes a good grade of furniture varnish, which costs about one dollar a quart, is used in place of shellac. Either one of these agencies brings out the natural color of the wood very nicely.

In some cases the outside of the box is made of a different wood to harmonize with the finish of the room in which the chest is to be placed. In this case the cedar lining is simply tacked onto the inside of the box, the cedar boards being unvarnished on both faces.

Sometimes drawers in linen closets are lined with sassafras wood, which has an aromatic odor, though not so pronounced as that of the red cedar. The white cedar has scarcely any odor and this wood is employed largely in the construction of canoes, and in other places where a light strong wood is desired, but it is not used where the purpose is to keep out destructive insects.

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### A Big Cut of White Pine

Editor, Canadian Woodworker.

Dear Sir,—On Saturday, July 8th, the Three Valley mill of the Dominion Saw Mills and Lumber, Limited, manufactured 105,287 feet of white pine from 191 logs, working an average of 551 feet per log. This was made by a double cutting band in 10 hours. They will manufacture about one and a half million feet this season of genuine white pine, and the percentage of number one and two clear is about 50 per cent. Plank 4 nches thick and 30 inches and over wide, 16 feet long perfectly clear are frequent occurrence. Where is there another plant that can equal it?

Yours truly,
E. N. HULLOCK.

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### Wants a Market for Shavings

The following letter was received from a reader who is looking for a market for his shavings.

Perhaps some of our readers may be able to assist him.

Palmerston, July 24, 1911.

Editor, Canadian Woodworker.

Dear Sir,—Where could I find sale for a quantity of shavings, a by product of a planing mill. I noticed an article in your last issue under the heading of Electric Motor in Planing Mills. We have here a gasoline plant and would be glad of a market for shavings.

Thanking you in advance for any information you may give me, I am

Yours truly,
A READER.

### Our Reply

In replying to the above letter will say that our article makes no reference to the sale of shavings or sawdust, but we know of a number of men who are using motor power and others who are using water or gasoline. Like yourself these men have a large accumulation of shavings and sawdust and find a local market among the icemen, brewers, and butchers, as well as shippers and packers.

In some cases no charge is made; in others the mill men deliver the shavings and sawdust and charge enough to cover cartage expenses. In still other places the shavings and sawdust are bailed up and shipped to outside points, the price obtained depending upon distance shipped, etc.

Trusting this information will be of some assistance to you, I remain

Yours truly,
Editor, Canadian Woodworker

# Boxes and Cooperage

### Making Money Out of Second-hand Barrels

The second-hand barrel man is coming in for some ungracious remarks on the part of coopers, who sem to envy him his large percentage of profit. The cooper, if he makes a cent or two on a barrel, is doing very well, and he is a prince if he makes five cents, while the second-hand barrel man picks up barrels with broken heads, a hoop or two off, but with staves usually complete, at practically his own price. He makes it over again at a small cost and sells it for twice what it cost him, or even more, which much more than covers the extra time he has spent on it. There are plenty of reports of big profits in second-hand barrels.

### The Layout of a Box Factory and the Correct Placing of Machines for Economy in Operation

Labor is a large and increasing factor in the cost of any manufactured article. While a great deal of attention is paid by the buyer of material to insure buying at the lowest prices, perhaps the labor question is neglected somewhat in considering costs, with the result that the manufacturer expends more than he should on that item.

In the box factory, for instance, a poor arrangement of machinery may mean that lumber and boxes may have to be handled oftener than they should. A few more handlings, a few more steps for the operators of the machines, and the cost of making the boxes is advanced heavily. Economy in expending labor, which is being paid for at a high rate, then, is an important consideration in making an arrangement of the saws and planers.

Another way in which costs may be decreased largely is through the use of electrical power, where this is practicable. The machines can be turned in any direction which is desired, thus making it possible for the material to progress uniformly towerd the next group of machines, something which is not always posible where shafting is used.

The ideal arrangement of the machines in a box factory is, necesarily, that which will involve the least amount of lumber handling. If the lumber can be put in one end of the factory and the finished box come out at the other, one process developing immediately from that preceding, the manufacturer is assured of the greatest possible economy in labor expenditure.

Provided the factory is fitted for the manufacture of lock-cornered boxes, which form a large proportion of the business of the average factory to-day, that end of the business can be handled on one side of the factory. The track leading into the factory from the dry kiln should bring the material to the resaw directly; and from there it should proceed to the planer.

It is advisable that a space for the storage of dry-kilned lumber after it has been resawed and planed should be adjacent to the planers, so that the stock can be taken immediately from them to the piles of dressed lumber.

The gang edger should be placed so as to receive the lumber from the planers without loss of time or effort, while from them the waterial should proceed to the cut-off saws. Opposite the cut-off saws are arranged the rip-saws in the model factory, while next to them are the tongue and groove and tock-corner machines. The printing, if any is to be done, can readily be completed at this point, and at the next machines the boxes are ready to be knocked together.

Proceeding from this point the boxes move to the corner-trimmers, the sanders and the nailing machines, and if the storeroms for the completed boxes are on an upper floor, as is usually the case, the services of an elevator are, of course, required. From this location chutes lead into wagons or cars, and when shipments are made the boxes are conveyed to the appointed place without loss of time and with all the more ease becauseg ravity performs the greater part of the work.

It is a good idea to have he division devoted to packing boxes parallel with that where lock-cornered work is done, in order that both departments may have their outlet upon the switch or driveway from which wagon shipments start. The lumber should be able to move quickly from the kiln to the band resaws, and there to the planers, as in the case of material intended for lock-cornered boxes.

A space for bulking the dressed lumber should be located between the planers and the cut-off saws, so that the latter may always have material for work within reaching distance. Opposite the cut-off saws, and in a position to take the lumber as it comes from them, are rip-saws, which in turn feed into the tongue and groove machines and the printer's hands.

In many box factories the final part of the manufacture of the nailed-up box is completed on the upper floor, as it is frequently more convenient to handle the shooks in the elevator than the nailed-up box. The nailing machines are usually arranged in parallel rows in order to get the best results, and after that is done the boxes are stacked to await shipment. As in the case of the other packages, chutes are used to let the boxes down into the wagons or cars.

It is not always possible, on account of lack of room, or for other reasons, to hitch the steps of the process of manufacture one upon another as the manufacturer would like, but where it can be done the saving is undoubtedly considerable. Another big factor is the reduction of time waste,—and in the rush season, with orders piling up in a way that means night work, saving time is a proposition that isn't likely to be ovrelooked if there is a chance for carrying out the idea.

### Improvements Which a Modern Planer Ought to Possess

As a practical mechanic who has toiled amid the din and roar of machinery in various wood-working establishments, I have noticed many improvements on

the various machines. Let us take the planer for example; we have many types of this machine made by different makers, each and all of whom have some redeeming feature about them, which either increase the output or the quality, or tends to reduce the danger of accidents to the operator.

Now why should we not have all those manifest advantages combined in one machine? No doubt it would be acostly machine, but its numerous advantages would soon pay for the extra initial cost. We should soon forget the price, but never forget that we uossess a first-class machine which does first-class work quickly and cheaply.

The following are a few really good improvements, which ought to form part of every up-to-date planer: A circular cutter-block or cylinder running in long self-lubricating or ball-bearing journals belted at both ends, for all machines over 16 inches wide. Then we could safely run at 4,500 revolutions per minute with a perfectly-balanced cylinder which would naturally produce first-class work even on coarse or cross-grained timber. A sectional feed roller would largely increase the output, as it would be impossible to use the machine to its capacity with perfect safety when planing narrow widths of varying thicknesses, without fear of the thinner strips shooting back, as every piece would be firmly held by the section al feed roller. It would also be advantageous to have a range of speeds on the feed from 12 to 30 feet per minute, to cope with the varying grades of timber and quality of the work desired. An arrangement for raising and lowering the bed would also be a great time and labor-saving attachment—the finer adjustment could, of course, be manipulated by a hand-wheel, as at present.

A positive chain feed would also be an improvement, providing a good friction clutch is supplied so that the feeding can be instantly stopped if occasion arises.

It would also be desirable to have a set of fences for doing the edges. Those would require to be arranged in such a way that they could be quickly put in position, and be quite rigid, so that we could depend on the edges of the timber being perfectly square.

Now that the dust-collecting system has come to stay, provision should also be made for a hood, which should be finished off in such a way that it would only be necessary to lead the blower pipe to it. Last, but not least, a modern planer that has to stand the racket of 4,000 revolutions per minute must be provided, with good wide pulleys of fair size, so that a good wide belt may be used and reduce belt trouble to a minimum. And there you have all the good things combined in one machine. It may be costly, but it certainly would be a good investment as a time saver and a money maker, besides being a pleasure to work it.—J. M. N., in Mill and Work Practice.

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### A Ravenous Industry

The forests of the United States now cover 550,000,000 acres, or about one-fourth of the area of the country. Forests publicly owned contain one-fifth of all timber standing. The timber privately owned is not only four times that publicly owned but it is generally more valuable.

Forestry is not practiced on 70 per cent. of the forests publicly owned and on less than 1 per cent. of the forests privately owned, or on only 18 per cent. of the total area of the forests.

The original forests of the United States contained timber in quantity and variety far beyond that upon any other area of similar size in the world. They covered 850,900,000 acres with a stand of not less than 5,200,000,000,000 board feet of merchantable timber, according to present standards of use. There were five great forest regions—the northern, the southern, the central, the Rocky Mountain and the Pacific.

The present rate of cutting is three times the annual growth of the forests of the United States. The great pineries of the Lake States are nearing exhaustion and great inroads have been made upon the supply of valuable timber throughout all parts of the country.

The heavy demands for timber have been rapidly pushing the great centres of lumber industry towards the South and West. In consequence, the State of Washington has led for several years in lumber production, followed in order by Louisiana, Texas, Mississippi, Wisconsin and Arkansas. In 1908 the production of yellow pine lumber amounted to eleven and one-quarter billion feet; the Douglas fir of the Northwest held second place with three and two-thirds billion feet; while white pine came third, with three and one-third billion feet.

The annual cut from the forests including waste in logging and in manufacture, is 20,000,000,000 cubic feet of wood.

There is used in a normal year 90,000,000 cords of fire wood, 40,000,000,000 board feet of lumber, 118,000,000 hewn ties, 1,500,000,000 staves, over 123,000,000 sets of heading, nearly 500,000,000 barrel hoops, 3,000,444 cords of native pulp wood, 165,000,000 cubic feet of round mine timbers and 1,250,000 cords of wood for distillation.

In 1909 4,002,000 cords of wood were used in the manufacture of paper, of which 794,000 cords were imported from Canada. The demand for pulp wood is making a severe drain on the spruce forests which furnish the principle supply. The Forest Service of the United States Department of Agriculture, is conducting investigations to determine what other woods such as scrub pine, white, fir, tupelo and the like, can be successfully used.

A larger drain upon forest resources is made by the demand for railroad ties, of which 123,754,000, equivalent to three and three-quarters billion board feet, were used in 1908. White oak, hitherto the chief source of supply, is not plentiful enough to meet this demand indefinitely, and in many parts of the country the supply of chestnut, cedar and cypress is dwindling; however, seasoning and treating methods are being found, largely through the work of the Forest Service, by which cheaper and more plentiful woods, such as lodgepole pine in the Northwest and lobylobby pine in the South, are made fit for use as ties. Timber to the amount of two and one-half billions feet was used in 1907 for mine timbers. A great saving has been effected in the naval stores industry, also largely through the work of the Forestry Service, by the introduction of the so-called "cup" system of turpentining in place of the old destructive system of "boxing." The new systems insure a larger product of better quality and prolong the life of the longleaf pine forests upon which the industry depends.

It is recognized by foresters that the cost of artificial reforestation will not always furnish a basis

of estimating the damage to forest reproduction. When new growth can be expected by natural sowing from seed-trees on the ground within a short time, artificial planting or sowing is an unnecessarily expensive method. To meet such cases what are known as "yield tables" are being prepared. By the use of these the loss can be shown in terms of the final crop and the time necessary to produce it.

Thus, if it is known that 10,000 feet of timber per acre can be cut once in seventy years, it is easy to calculate the value of the crop when it is ten years old by discounting from its value when mature. In European countries where forestry has been long practiced this method is regularly applied in selling, condemning, or estimating damages on forest property. It is also used abroad in insurance, which would be impracticable if there were not both an accepted basis for determining the loss suffered and a reasonably accurate knowledge of the hazard involved.

### A New Machine for Cigar Box Work

Something new in the way of a cigar box cut-off saw is the J. A. Fay & Egan Company's No. 281 just placed on the market, and which we illustrate herewith.

The main idea of the manufacturers in designing this tool was to bring out o cut-off saw which would run so lightly and easily that the operator would be turning out as much work at 5 p.m. as he did at 7.30 a.m.—something impossible on the old roller table style. To this end, the rollers were eliminated. Instead frictionless steel balls were placed in planed steel ways, the table resting on these balls. This makes the table move so easily that it can be pushed forward with practically no effort even when piled up with stock. In addition spring bumpers were placed at the end of the forward movement of the table. By means of these bumpers the table is started back to the original position with no effort on the part of the operator.

While the above are the principal features of this machine, the details of construction have not been overlooked. The frame is substantially made and properly proportioned to give rigidity to all working parts. A fence extends the entire lenth of and is fitted to the table with a dovetailed iron plate. This fence carries a stop to regulate the length of material to be cut-off. The stop is hinged so that it may be thrown back out of the way when not in use.

It is now being realized in all lines of manufacturing that increased profit will come only with increased efficiency in the works. This applies to the box making industry as well as any other. It should, therefore, be advisable for every box maker, particularly those making cigar boxes, to write the J. A. Fay & Egan Co., 153-173 W. Front street, Cincinnati, Ohio, for particulars of this new "increased efficiency" tool.

### Old Time Smoke Nuisance

We are accustomed to think of the smoke nuisance as a modern phenomenon, but Professor V. B. Lewes shows that it raised so much indignation in England 600 years ago that a decree was made forbidding the use of bituminous coal for fuel. Such uel was then a new thing.

In the time of Queen Elizabeth another attempt to use bituminous coal was defeated by public opposition to the smoke. The third effort attained complete success in the nineteenth century, and now the quantity of smoke belched into the air is so great that Professor Lewes likens it to a cumulative poison which aids in shortening life, killing vegttation and begriming and destroying buildings.

### Box Manufacturer Enters Automobile Business

The old Nasmith building at the corner of Adelaide and Jarvis streets, Toronto, has been sold to the Pack Electric Company, a new Canadian automobile firm. The building is being converted into a factory and warehouse and the makng of electric automobiles in their entirety will be entered upon at once.

Toronto capital is chiefly interested in this new venture, one of the largest stockholders being Mr. John Firstbrook of the well-known firm of Toronto boxmakers, Messrs. Firstbrook Bros.

# From Coast to Coast

### Stanley Douglas Contemplates the Erection of a Saw Mill in Fredericton

If prompt action is taken in the matter this city may have a new industry.

Mr. Stanley Douglass, formerly a member of the firm of Douglass Bros., Stanley, who moved to this city several months ago, is considering the question of erecting a mill here and the only obstacle which is holding the proposition up at present is the trouble of obtaining a suitable site.

Mr. Douglass has capital to start a mill and would be willing to go into the business without any concessions from the city, providing he can secure a suitable site to erect the mill.

The Council of the Board of Trade would probably be willing to take action towards securing a spitable place for the erection of this important industry, which would give employment to a large number of men, while if Mr. Douglass cannot secure the site here he may decide to locate in the west.

It is stated on good authority that owing to the scarcity of cedar logs and the fact that a large amount of lumber is hung up the Morrison's mill may not run very long this season; and would emphasize the necessity of the city of Frederiction securing this new industry, especially when it can be done without any cash concessions from the city.

Aew ll-known business man, who is posted on lumber conditions, stated to-day that in the event of the Twitchell syndicate taking over the Scott property the Victoria mill might possibly be run to saw lumber for a pulp mill which would be erected nearby. It is said that this will would require considerable overhauling before it could be used as a lumber mill again.

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### Mill Closed Down and 480 Men Thrown Out of Employment

The big plant of the Rainy River Lumber company at Rainy River, has been compelled to cease operations, owing to the company's inability to drive sufficient logs down the river to supply them, the reason for this being that the water in the Raily River is being diverted for the private uses of the Backus paper mill at International Falls. As a result of the mill being closed over 480 employees, all residents of Rainy River, have been thrown out of employment.

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### C. N. R. Building Alterations to Toronto Building

The C.N.R. took out a permit yesterday which provides for a $20,000 extension and renovation of the building at Kink and Toronto streets.

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### Fire in Wyoming

The planing mill of W. J. Travis was burned recently, the loss being placed at four to five thousand dollars. This had been one of the town's chief industries.

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### Crushed to Death

Ottawa, Ont.—Geo. Pappilon, one of the teamsters drawing lumber for J. R. Booth, fell off his cart during the heat at Hull to-day. The wheels of the cart passed over him and he died.

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### Forest Fire Burned Lumber Company Out

Albany, Or.—Fire which started in logging camp 6, of the Curtiss Lumber Company, caused the destruction of the plant, according to word received here to-day. The loss will be in excess of $40,000.

It is reported a forest fire is doing considerable damage in the vicinity of the Santiam river.

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### The Allan Saw Mill Burnt

The contract has been signed with the Canadian Vickers, Lmited, for the construction of a three-million-dollar drydock at Montreal.

The big Allan saw mill at Campbell's bay, about thirty miles west of Ottawa, on the Ottawa river, was destroyed by fire.

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### Fire At Montreal

Montreal, Que.—Fire destroyed the sash and door factory of J. A. Bain and Company, corner Delorimer and Craig streets this morning, causing a loss estimated at $50,000.

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The Grand Trunk freight sheds, seven cars and their contents were burned at Paris Junction.

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### Will Soon Be Ready for Business

The large new planing mill of the Shelvin-Clarke Company, Fort Frances, is rapidly nearing completion and will soon be ready for operation.

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### Miramichi Drives

Mr. John T. Rundle, of the Miramichi Lumber Company, Chatham, N. B., to-day states that the company's drives were all brought out this year with the exception of three or four millions not expected to get out this year at all.

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### New Match Factory

The plans for the erection of a match factory in Fort William, Ont., have been submitted to the directors. The plant will produce twenty million matches every day and half the output has been disposed of in advance to western jobbers and wholesalers. The plant is to be served by a new C. P. R. industrial spur.

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### A Record Cut

The Danville Lumber Company of Danville, B. C., in ten hours made their record cut for the season so far, putting through 50,000 feet of lumber.

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### Brockville, Ont.

A two-hundred-thousand-dollar corporation has been formed at Brockville to build automobiles.

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### Permits Reach Over $75,000—In Brantford

During the month of July 56 building permits were issued by the City Engineer, which totalled $76,287. During July of last year the permits reached $61,825, which was $14,462 below the month just passed.

**Bank Retains the Logs**

Ten thousand feet of valuable logs have been lying on the banks of the Sturgeon river and McClarey's creek for the past six years, while the Quebec Bank and the Imperial Paper Mills of Canada have been waging a legal war over their ownership. This morning Mr. Justice Britton decided the point in favor of the bank.

The logs in question were cut away back in 1905, on the banks of McClarey's creek, which is a tributary of the Sturgeon river. They were rolled down into the creek, ready for driving, when the Paper company found it necessary to raise a loan from the bank, pledging the logs as security. The company later went into liquidation, Mr. E. R. C. Clarkson being appointed liquidator. Then the question of the ownership of the logs arose.

Mr. Justice Britton handed out his judgment on the case. He allowed the bank's claim on the logs, and also gives them the cost of hauling them to the bank, with any damage sustained in the hauling.

**Serious Fire in Sunbury Co.**

The mill at French Lake, Sunbury County, owned and operated by Mr. Frank Carr, was completely destroyed by fire yesterday afternoon, also a quantity of manufactured lumber. The origin of the fire is unknown as the mill was not running yesterday. The loss will total several thousand dollars and there was no insurance.

**Woodworking Factory Burned**

Montreal, Que., Aug. 8.—Fire destroyed the sash and door factory of J. A. Brian & Co., corner Delorimier and Craig streets, yesterday morning, causing a loss estimated at $50,000.

The Bain Wagon Company, Woodstock, Ont., are considering the erection of a factory building to cost $25,000. Their plans are for a building of four storeys, 127 x 50, of brick and cement.

Leak & Company, Limited, Toronto, have secured an Ontario charter to carry on a lumber business. The provisional directors are Willian Leak, Herbert Arthur Leak and Emily Leak. The capital is $40,000.

The Consumers Box and Lumber Company, Ernest avenue, Toronto, are building an addition to their plant. The building will be 230 x 62 ft., of frame construction, covered with iron and with a concrete foundation.

Arrangements are being made by the business men of Eganville, Ont., for the reconstruction of the buildings recently destroyed by fire. The buildings destroyed included eight residences, a roller mill, a hotel, a sawmill and a number of business offices.

The Port Arthur Wagon Works Company, Limited, are erecting a $250,000 factory building at Port Arthur, Ont. The building is to be 400 x 100 feet, partly one storey, and partly two storeys. The plant will include dry kiln, machine shop, wood shop, assembling shop, etc.

The Consumers Lumber Company, Limited, Hamilton, Ont., have secured an Ontario charter to carry on a wholesale and retail lumber and cement business and a lumber manufacturing business. The capital is $75,000. The provisional directors are Guy H. Long, F. Burton and R. Stewart.

The Conger Lumber Company, Parry Sound, Ont., have recently put in a new lath mill and bolter, manufactured by P. Payette & Company, Penetanguishene, Ont., and also a new hog. The new equipment has increased the capacity of their plant by 10,000 feet per day. The company will cut 15,000,000 feet of lumber this year.

The plant of the Canada Car & Foundry Company, at Amherst, N. S., will be extended by the erection of reinforced concrete buildings in place of those recently destroyed by fire.

The rotary mill and a quantity of lumber, owned by Timothy Hurley, of Hurlay Brook, N. B., on the I. C. R., was destroyed by fire recently. The loss may total in the vicinity of $5,000.

Citizens of Aylmer, P. Q., are petitioning the council to prevent the piling of lumber within the limits of the town. This is the result of the recent fire at Aylmer, by which the firm of R. & T. Ritchie lost a large amount of lumber.

Mr. A. B. Hunt, M.P., has completed the sale of a large timber limit in the Lake St. John district to an English company. This limit embraces an area of 300 square miles of timber land, and it is understood that the new company will build a pulp mill on one of the rivers. The price is said to be $100,000. Mr. Hunt will be a member of the new company.

A syndicate of Montreal capitalists, headed by Messrs. Rodolphe Forget, J. N. Greenshields and J. C. McCuaig, have purchased over eleven hundred square miles of timber limits in the St. Maurise district of the Province of Quebec. They have arranged for the erection on an island at the mouth of the St. Maurice of a pulp and paper plant, which is estimated will be one of the largest and most modern in the country.

The Swedish Lumber Company are reported to have bought the entire property of Mr. R. O'Leary, Richibucto, as well as the property of the Kent Electric Company in Kent County, N.B. This gives the company about fifty square miles of Crown lands and a large tract of private lands. It is the intention of the company to enlarge the plant at Richibucto. The price received by Mr. O'Leary for his property is said to be $150,000.

The United Lumber and Shingle Mills, Iimited, Vancouver, B. C., have been incorporated, with a capital of $100,000.

The Clary, Green, Wade Logging Company, Limited, 422 Richards street, Vancouver, have been incorporated, with a capital of $10,000.

The Canadian Timber Investment Company, Limited, Royal Bank Chambers, Vancouver, has been incorporated, with a capital of $400,000, to carry on business as saw and shingle mill owners, timber manufacturers, etc.

The McLelan Lumber Company, Ladner, B. C., are preparing plans for the erection of a sawmill with a capacity of 45,000 feet per day. It was expected that arrangements for construction would be completed by Aug. 1.

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The Hocken Lumber Company, of Otter Lake, about six miles from Parry Sound, Ont., recently lost a thousand cords of hemlock bark as the result of serious bush fires.

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A large number of college students are working in the mills at Campbellton and other New Brunswick manufacturing points. The majority are studying forestry and putting in their summer at the mills so as to obtain a first hand knowledge of the lumber manufacturing business. Several Harvard and Yale men are in the mills at Campbellton.

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It is reported that the new line of the Canadian Northern Railway from Port Arthur to Montreal will open up a great deal of valuable territory. The railway will pass through a large belt of excellent pine timber which can only be taken out by rail, as the rivers in that district flow to the north. Lumbermen are already looking over the country in advance of construction.

The International Land and Lumber Company, Limited, has obtained an Ontario charter. The capital of the company is placed at $2,000,000, and its head office it to be at Ottawa. The provisional directors include S. A. Huntington, C. E. Sellery, R. H. Simmonds, A. H. Armstrong, and T. A. Beaumont, all of Ottawa. The purpose of the company is given as that of a land and building company.

The Paget Car Door Company, of Goderich, Ont., are preparing to manufacture car doors. They estimate that they will require a cor of lumber each week, as they have contracts with the G. T. R., C. P. R., and C. N. R., for equipping cars. They will employ one hundred men. Mr. J. Youngson, of Goderich, is manager of the company. They have taken over a building erected by the Doty Engine Company.

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The Muskoka Wood Manufacturing Company have just finished laying a new switch in their lumber yard at Huntsville, Ont. The space afforded by this switch will add to the piling ground, increasing the capacity of the yard by about two million feet, and will be of much assistance to the company in allowing their lumber to dry more quickly. They have also recently added to their plant an up-to-date machine shop where they will be able to repair almost any break that may occur. The company have also recently installed anothed of the Berlin Machine Works Company's latest hardwood flooring machines and also an outfit of the most up-to-date filing and grinding machinery.

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The Charlton Sawmill Company, Limited, Collingwood, Ont., were rather late this year in getting their logs to the mill, and only started sawing early in July. The company have a very up-to-date mill, the equipment of which includes two single cutting band saws, and the capacity of which is from 75,000 to 100,000 feet per day. They have an excellent system of yards, so planned as to be special adapted for dry lumber without staining. Their equipment includes two large lake tugs with complete boom equipment. This year they are sawing a large amount of lumber for T. Tait, of Orillia, Ont. Mr. F. R. Roginson is manager and secretary-treasurer of the company, and Mr. E. J. Ryan, mill manager.

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A general meeting of the shareholders of the Preston Woodworking Machinery Company, Preston, Ont., was held recently and the following officers were elected: President, W. S. Hudson; vive-president and managing director, W. H. Mullin; 1st vice-president and manager of works, W. J. Murray; secretary-treasurer, Allan Kerr; directors, H. C. Edgar, Fred Fischer, Jr., P. Bernhardt, Geo. Fink, and Lyn Pattison. Plans have been prepared for the erection of a factory 100 x 100 feet and a moulding shop 40 x 60 feet, for which tenders are now being called. A good site has been secured just east of the G. T. R. freight sheds, and comprising about two acres. The company expect to be in a position to do business in about four months.

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The Owen Sound Furniture Company, Limited, Owen Sound, Ont., are about to commence operations in their new factory.

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The Warren Lumber Company, at Sellwood, Ont., was burned out recently, with heavy loss, much lumber being destroyed.

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The Spanish River Pulp & Paper Company, of Espanola, Ont., will erect a hotel at Espanola. The building is to be 37 x 150 ft., of brick veneer, with concrete foundation.

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A report from New Liskeard states that fire has completely destroyed the mill at Nushka belonging to Mr. J. Perrault. The loss amounts to between $2,000 and $3,000.

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The Sawyer-Massey Company, Limited, manufacturers of agricultural implements, Hamilton, Ont., have let contracts for the erection of o one-storey factory, 90 x 70 ft., of brick and steel.

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The following is a comparative statement of the value of unmanufactured wood and timber, and manufactured wood, imported from Canada during the fiscal years 1909 and 1910, showing increase or decrease:—

| | 1910 | 1909 | Increase 1910 | Decrease 1910 |
|---|---|---|---|---|
| | £ | £ | £ | £ |
| Wood, unmanufactured— | | | | |
| Hickory | 42 | | 42 | |
| Oak | 52 | | 52 | |
| Spruce and pine | 74,336 | 21,778 | 52,558 | |
| Poplar | 146 | | 146 | |
| All other n.o.d. | 4,503 | | 4,503 | |
| Flooring and ceiling | 1,741 | 2,410 | ..... | |
| Wood, pln'd, gv'd.. | 14,603 | 6,442 | 8,161 | |
| Wood, manufactured— | | | | |
| Wooden boxes, epty. | 392 | 359 | 33 | |
| Casks, empty. .... | 4 | 5 | ..... | 1 |
| Handles for picks.. | 450 | 828 | ..... | 378 |
| Houses and frames | 103 | 407 | ..... | 304 |
| Staves | 1,516 | ..... | 1,516 | |
| All other, n.o.d. .. | 2,249 | 1,909 | 340 | |
| Wood pulp or wool | 195 | ..... | 195 | |
| | £100,362 | £34,138 | £67,576 | £1,352 |
| | 34,138 | | 1,352 | |
| Increase ... .. | £ 66,224 | | £66,224 | |

# BUYER'S DIRECTORY

**BABBITT METALS.**
Shurly Dietrich Co., Ltd., Galt, Ont.
Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

**BALUSTER LATHES.**
C. Mattison Machine Works, Beliot, Wis.
Ober Mfg. Co., Chagrin Falls, O.
Baxter D. Whitney & Son, Winchendon, Mass.

**BAND SAW FILING MACHINERY.**
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
Shurly Dietrich Co., Ltd., Galt, Ont.
Fay & Egan Co., Cincinnati, Ohio.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

**BAND SAWS.**
Shurly Dietrich Co., Ltd., Galt, Ont.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
R. H. Smith Co., Ltd., St. Catharines, Ont.

**BAND SAW MACHINERY.**
Mussens, Ltd., Montreal.
Canada Machinery Agency, Montreal.
Berlin Machine Works, Ltd., Hamilton, Ont.
Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

**BAND SAW MILLS.**
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Monteral.
Mussens, Ltd., Montreal.
Fay & Egan Co., Cincinnati, O.

**BAND SAW STRETCHERS.**
Fay & Egan Co., Cincinnati, O.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

**BENDING MACHINES.**
Mussens, Ltd., Montreal.
Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.

**BELTING.**
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Sadler & Haworth, Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
H. W. Petrie, Ltd., Toronto.

**BELTS (Endless).**
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Sadler & Haworth, Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt.
H. W. Petrie, Ltd., Toronto.

**BELT CEMENT.**
Sadler & Haworth, Montreal.

**BELT FASTENERS.**
Sadler & Haworth, Montreal.

**BELT DRESSING.**
Sadler & Haworth, Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt.

**BLOWERS.**
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
Sheldons, Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

**BLOW PIPING.**
Sheldons, Ltd., Galt, Ont.

**BOILERS.**
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

**BORING MACHINES.**
Canada Agency Montreal.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
J. M. Nash, Milwaukee, Wis.
Valley City Machine Works, Grand Rapids, Mich.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

**BOX MAKERS' MACHINERY.**
Canadian Linderman Co., Ltd.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Baxter D. Whitney & Son, Winchendon, Mass.
C & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

**CABINET PLANERS.**
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Valley City Machine Works, Grand Rapids, Mich.
Baxter D. Whitney & Son, Winchendon, Mass.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

**CARS (transfer).**
Sheldons, Ltd., Galt, Ont.

**CARVING MACHINES.**
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Valley City Machien Works, Grand Rapids, Mich.

**CHISELS.**
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.

**CIRCULAR SAW MILLS.**
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

**CHAINS (Silent).**
Jones & Glassco, Montreal.

**CLAMPS (Chain, Carpenter, Cabinet, Pattern Makers, Bench, Mitre, Piling, Mounted and Rotary Wheel).**
Black Bros. Machinery Co., Mindota, Ill.
J. A. Fay & Egan Co., Cincinnati, O.

**CLAMPS (Saw).**
Shurly Dietrich Co., Ltd., Galt, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

**CLUTCHES.**
J. A. Fay & Egan Co., Cincinnati, O.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

**COLUMN CLAMPS.**
Black Bros. Machinery Co., Mendota, Ill.

**COLUMN MACHINERY.**
J. A. Fay & Egan Co., Cincinnati, O.
C. Mattison Machine Works, Beloit, Wis.

**CORE BOX MACHINES.**
J. A. Fay & Egan Co., Cincinnati, O.
E. & B. Holmes Machinery Co., Buffalo, N.Y.

**CUT-OFF SAWS.**
Shurly Dietrich Co., Ltd., Galt, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
Simonds Canada Saw Co., Montreal.
R. H. Smith C., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

**CUTTER HEADS.**
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Samuel J. Shimer & Sons, Mitton, Pa.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

**DADO HEADS.**
C. Mattison Machine Works, Beloit, Wis.

**DISK GRINDERS.**
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.

**DOGS (Saw Mill).**
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.

**DOVETAILING MACHINES.**
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.

**DOWEL MACHINES.**
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Valley City Machine Works, Grand Rapids, Mich.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

**DRILLS (Automatic Hand).**
North Bros. Mfg. Co., Philadelphia, Pa.

**DRILLS (Reciprocating).**
North Bros. Mfg. Co., Philadelphia, Pa.

**DRILLS (Breast).**
North Bros. Mfg. Co., Philadelphia, Pa.

**DRYING MACHINERY.**
Canada Machinery Agency, Montreal.
Sheldons, Ltd., Galt, Ont.

**DRY KILNS.**
Canada Machinery Agency, Montreal.
Sheldons, Ltd., Galt, Ont.

**DUST COLLECTORS.**
Canada Machinery Agency, Montreal.
Sheldons, Ltd., Galt, Ont.

**DUST SEPARATORS.**
Canada Machinery Agency, Montreal.
Sheldons, Ltd., Galt, Ont.

**DYNAMOS.**
Canada Machinery Agency, Montreal.

**EDGERS (Gang).**
Berlin Machinery Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
Simonds Canada Saw Co., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Fisher, Sander Co., Berlin, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

**EDGERS (Single Saw).**
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
Simonds Canada Saw Co., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

**END MATCHING MACHINE.**
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler Ont

Mussens, Ltd., Montreal.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

ENGINES (Steam).
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

EXHAUST FANS.
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
Sheldons, Ltd., Galt, Ont.

FLOORING MACHINES.
Berlin Machine Works, Ltd., Hamilton.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler.
Mussens, Ltd., Montreal.
Samuel J. Shimer & Sons, Milton, Pa.
Baxter D. Whitney & Son, Winchendon, Mass.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

FLINT.
Wausau Quartz Co., Wausau.

FLUTING HEADS.
J. A. Fay & Egan Co. ,Cincinatti, O.

GAINING MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinatti, O.
C. Mattison Machine Works, Beliot, Wis.
Mussens, Ltd., Montreal.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie Co., Ltd., Toronto.

GAS ENGINES.
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
H. W. Petrie, Ltd., Toronto.

GAUGES (Saw).
Shurly Dietrich Co., Ltd., Galt, Ont.
Simonds Canada Saw Co., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

GEAR HOBBING MACHINE.
Reynolds Machine Co., Moline, Ill.

GLUE CLAMPS.
Black Bros. Machinery Co., Mendota, Ill.
H. W. Petrie, Ltd., Toronto.

GLUE HEATERS.
J. A. Fay & Egan Co., Cincinnati, O.

GLUE JOINTERS
Canadian Linderman Co., Ltd.

GLUE SPREADERS.
J. A. Fay & Egan Co., Cincinnati, O.

GRINDERS (Cutter).
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Falls Machine Co., Sheboygan Falls, Wis.

GRINDERS (Knife, etc.).
E. C. Atkins & Co., Hamilton, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
T. A. J. Burton Saw Co., Ltd., Vancouver, B.C.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

GRINDERS (Tool).
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Valley City Machine Works, Grand Rapids, Mich.

GROOVING HEADS.
E. C. Atkins & Co., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
C. Mattison Machine Works, Beloit, Wis.
Samuel J. Shimer & Sons, Milton, Pa.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

HAND PROTECTORS.
J. A. Fay & Egan Co., Cincinnati, O.
Jones Safety Device Co., Hamilton, Ont.

HAND SCREWS.
Black Bros. Machinery Co., Mendota, Ill.
J. A. Fay & Egan Co., Cincinnati, O.

HEATING APPARATUS.
Sheldons, Ltd., Galt, Ont.

HANDLE AND SPOKE MACHINERY.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
J. M. Nash, Milwaukee, Wis.
Ober Mfg. Co., Cragrin Falls, O.
Baxter D. Whitney & Son, Winchendon, Mass.

HUB MACHINERY.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.

INJECTORS.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

JOINTERS.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canadian Linderman Co., Ltd.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

KNIVES (Planers and Others).
Shurly Dietrich Co., Ltd., Galt, Ont.
E. C. Atkins & Co., Hamilton.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.
Samuel J. Shimer & Sons, Milton, Pa.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

LACE LEATHER.
Sadler & Haworth, Montreal.

LAST MACHINERY.
Canada Machinery Agency, Montreal.

LATHES (Pattern Makers').
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Valley City Machine Works, Grand Rapids Mich.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

LATHES (Turning).
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Haspeler, Ont.
C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Plessisville Foundry, Plessisville, Que.
Valley City Machine Works, Grand Rapids, Mich.
Baxter D. Whitney & Son, Winchendon, Mass.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

LOOSE PULLEYS.
J. A. Fay & Egan Co., Cincinatti, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

LUBRICANTS AND GREASES.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

MITRE MACHINES.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

MITRE SAWS.
Shurly Dietrich Co., Ltd., Galt, Ont.
E. C. Atkins & Co., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Simonds Canada Saw Co., Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo N.Y.
H. W. Petrie, Ltd., Toronto.

MITRE CLAMPS.
Black Bros. Machinery Co., Mendota, Ill.
H. W. Petrie, Ltd., Toronto.

MORTISING MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
Black Bros. Machinery Co., Mendota, Ill.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinatti, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Jones & Glass Co., Montreal.
Mussens, Ltd., Montreal.
Plessisville Foundry Co., Plessisville, Que.
Valley City Machine Works, Grand Rapids. Mich.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

MOTORS.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.

MULTIPLE BOXING MACHINES.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
J. M. Nash, Milwaukee, Wis.

PATTERN SHOP MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Baxter D. Whitney & Son, Winchendon, Mass.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

PICTURE FRAME MACHINERY.
Black Bros. Machinery Co., Mendota, Ill.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.

PLANES.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.

PLANERS.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Baxter D. Whitney & Son, Winchendon, Mass.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

PLANING MILL MACHINERY.
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C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Samuel J. Shimer & Sons, Milton, Pa.
Baxter D. Whitney & Son, Winchendon, Mass.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
Black Bros. Machinery Co., Mendota, Ill.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie Co., Ltd., Toronto.

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Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

QUARTZ.
Wausau Quartz Co., Wausau.

RESAWS.
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E. C. Atkins & Co., Hamilton, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency Montreal.
Simonds Canada Saw Co., Montreal.
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The Goldie & McCulloch Co., Ltd., Galt.
R. H. Smith Co., Ltd., St. Catharines, Ont.
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Mussens, Ltd., Montreal.

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The Jones Safety Device Co., Ltd., Hamilton, Ont.

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Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
J. M. Nash, Milwaukee, Wis.
Ober Mfg. Co., Chagrin Falls, O.
Plessisville Foundry, Plessisville, Que.
Fisher Sander Co., Berlin, Ont.
Black Bros. Machinery Co., Mendota, Ill.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

SAND.
Wausau Quartz Co., Wausau.

SANDPAPER.
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SANDERS (Moulding, Belt and Panel).
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Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
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Black Bros. Machinery Co., Mendota, Ill.
H. W. Petrie, Ltd., Toronto.

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Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
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Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.

SAW MILL MACHINERY.
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Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
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Berlin Machine Works, Ltd., Hamilton, Ont.
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SAW TABLES.
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H. W. Petrie, Ltd., Toronto.

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Canada Machinery Agency, Montreal.
Simonds Canada Saw Co., Montreal.
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Mussens, Ltd., Montreal.

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Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

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Baxter D. Whitney & Son, Winchendon, Mass.

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Mussens, Ltd., Montreal.
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Plessisville Foundry, Plessisville, Que.
Falls Machine Co., Sheboygan Falls, Wis.

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Plessisville Foundry, Plessisville, Que.

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The Goldie & McCulloch Co., Ltd., Galt Ont.
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VENTILATING APPARATUS.
Sheldons, Ltd., Galt, Ont.

VENEER DIERS.
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VENEER PRESSES (Hand and Power).
Canada Machinery Agency, Montreal.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Hydraulic Press Mfg. Co., Mount Gilead, Ohio.
Mussens, Ltd., Montreal.
Black Bros. Machinery Co., Mendota, Ill.

VISES.
Mussens, Ltd., Montreal.

VISES (Band Saws).
Shurly Dietrich Co., Ltd., Galt, Ont.
Simonds Canada Saw Co., Montreal.
E. C. Atkins Co., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver. B.C.
H. W. Petrie, Ltd., Toronto.

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J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.

VISES (Circular Saws).
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Plessisville Foundry, Plessisville, Que.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
H. W. Petrie, Ltd., Toronto.

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Berlin Machine Works, Ltd., Hamilton, Ont.
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J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Baxter D. Whitney & Son, Winchendon, Mass.

WOOD PULLEYS.
Canada Machinery Agency, Montreal.
Plessisville Foundry, Plessisville, Que.

WORK BENCHES.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.

# After the Whistle Blows

### A Work of Genius

An ideally brief and delightful advertisement comes from a London shop window. It runs:

Our trousers five shillings a leg. All seats free.

---

### Too Feeble to Resist

"A couple," said Mrs. Simkins, "got married a few days ago after a courtship which lasted fifty years."

"I suppose," replied Mr. Simkins, "the poor old man had become too feeble to hold out any longer.

---

### And—Nerve

A travelling man who was a cigarette smoker reached town on an early train. He wanted a smoke, but none of the stores were open. Near the station he saw a newsbok smoking, and approached him with:

"Say, son, got another cigarette?"

"No, sir," said the boy, "but I've got makings."

All right," the travelling man said. "But I can't roll 'em very well. Will you fix one for me "

The boy did.

"Don't believe I've got a match," said the man, after a search through his pockets.

The boy handed him a match. "Say, Captain," he said, "you ain't got anything but the habit, have you?"

---

### Doubtful

Customer—"Look here, waiter, is that the stuff you've got the cheek to call ox-tail soup?"

Waiter—"That's it, sir."

Customer—"Well, you'd better take it out and let the ox dip his tail in it two or three times more."

---

### Costly Job

The fair was in full swing, and the organ attached to the steam roundabout was scream "Anybody Here Seen Kelly?" whilst the yokels performed gallant feats of horsemanship on the wooden Derby winners.

One rather stout old lady had just finished her sixth ride in succession when her husband, who was standing near, shouted the inquiry:—

"Feeling' queer yet, Emma?"

"Not a bit!" came the reply.

"You'd best come off, then" bellowed the man, in an attempt to drown the music.

"She says she don't feel queer," remarked the roundabout attendant, who was under the impression that the man had misunderstood his wife.

"I know it," was the answer; "that's why she's a-comin' off. She swallered a shilling 'alf an hour ago, and we thought p'r'aps your machine'd act as a hemetic. It's cost us sixpence already, so it's time to stop!"

---

### Foolish Questions

If a train hit a trolley, how would a car fare?

---

Does a broken engagement ring?

---

A stitch at 9.00 may prevent a rip at 10.00.

---

If the mother got up at 7 o'clock when would the son rise?

---

If a hen can lay an egg in the day time does it have to lay a-wake at night?

---

If a Chinaman played pool would he crack his queue?

---

### At the Races

At an annual series of races "for all comers" the sun was blazing down on a field of hot, excited horses and men, all waiting for a tall, raw-boned beast to yield to the importunities of the starter and get into line.

The patience of the starter was nearly exhausted. "Bring up that horse!" he shouted. "Bring him up!"

The rider of the refractory beast, a youthful Irishman, yelled back: "I can't! This here's been a cab-horse and he won't start till he hears the door shut, an' I ain't got no door!"

---

### Estiblished Her Identity

"But I don't know you, madam," the bank cashier said to the woman who had presented a cheque.

The woman, however, instead of saying haughtily, "I do not wish wour acquaintance, sir," merely replied with an engaging smile:

"Oh, yes, you do, I think. I'm the red-headed old virago' next door to you, whose scoundrelly little boys are always reaching through the fence and picking your flowers. When you started for town this morning your wife said: 'Now, Henry, if you want a dinner fit to eat this evening, you'll have to leave me a little money. I can't keep this house on plain water and sixpence a day.' "

"Here's your money," madam," said the cashier, pushing it toward her and coughing loudly.

# "Amphibia"

**Waterproof**

# Leather Belting

is made to do hard work in a wet place better than any other Belt. Let us prove it to you by sending a Belt on trial.

We always carry a full stock of all kinds of Leather Belting.

## Sadler & Haworth

**Montreal - Toronto**

The New Slow Speed

# Sheldon Exhaust Fan

**The Fan that is revolutionizing the Shaving Exhaust Business**

It will handle wet or dry, long or short shavings and sawdust, and will do this work with a guaranteed reduction in speed of from 25% to 40% less and with a power consumption of 20% to 35% less, than any other exhaust fan. The Casing is very similar to that formerly used, but the wheel is of an entirely different design.

**Let us tell you more about it**

## SHELDONS LIMITED - Galt, Can.

# Quality and Quantity by Superior Fitness

Every hour saved on a job adds to the working capacity of the mill.

## The Shimer Cutter Head SAVES

**The Making Ready** **The Filing to shape at each Sharpening**
**The Fitting and Trying**

The "make ready" built into the Shimer Cutter Head lessens the labour and expense of keeping your work up to a standard, and cuts down the time required to do the job. The time of the man who usually has to look after the "fitting and trying" or adjusting Bits for different kinds of lumber, can be utilized in more important ways.

The Expansion feature provides for quick changes in size of tongue or groove without removing the Head from the spindles. To change the fit of the tongue in the groove it is only necessary to turn the Expansion Ring—to the right to make it thinner—to the left to make it thicker. Each stop equals one-third of one-sixty-fourth of an inch. This delicate adjustment is much appreciated where the lumber varies in degrees of dryness, or when changing from one kind of lumber to another

The pattern of the work having been turned into the Circular Bits, the shape never changes when they are sharpened. The alternate shearing cut insures perfect work on any lumber, hard or soft. Cross-grained and knotty lumber is finished with well formed edges much to your satisfaction. You can use them and profit.

## Samuel J. Shimer & Sons,

**Branch of Milton, Pa.** **- Galt, Ontario, Can.**

You want a planing machine that will do the greatest amount of fine surfacing, all the time, on any kind of lumber brought in, at least cost and upkeep expense.

These are qualifications that have placed Whitney Planers in the largest, best regulated, best equipped furniture factories, planing mills and box making concerns in existence.

Whatever the kind of lumber is brought to Whitney Planers, whether a single or double surfacer, it will be delivered in quick time, planed absolutely smooth, and furthermore, you can drive a Whitney to the full limit of its capacity with perfect assurance that it will stand up to the work without going down and out for repairs.

We only await inquiry from you to show to your satisfaction that Whitney Planers, either single or double surfacers, are superior machines that produce superior planing.

---

Write

# Baxter D. Whitney & Son

**Winchendon, Mass.**

**WYSONG & MILES CO., Greensboro, N.C.**
Agents for Virginia, North and South Carolina, Georgia, Florida and Eastern Tennessee

**Pacific Coast Sales Department, H.H. PLUMMER, Manager**
Pacific Building, Seattle, Wash.

**HENRY KELLEY & CO.**
26 Pall Mall, Manchester, England

# CANADIAN WOODWORKER

Vol. 10 Toronto, September, 1911 No. 3



RACINE

## Shaper Guards

**Protect the Operator and SAVE DAMAGE SUITS**

Endorsed and recommended by all Factory Inspectors.

**Write for Prices and full Particulars, Free**

**Fair Mfg. Co., Racine, Wis.**

BOX E.

## Lightning Cut-Off Saw

**TO PRODUCE MORE WORK, TO INCREASE PROFITS**

We suggest our Lightning Cut-Off saw. Is self contained. Feed semi automatic. Saw mandrill runs in self oiling bearings.

*Write us for particulars and price*

**THE SOUTHAMPTON IRON WORKS**

**Southampton, Ont.**

From

## Nova Scotia to British Columbia

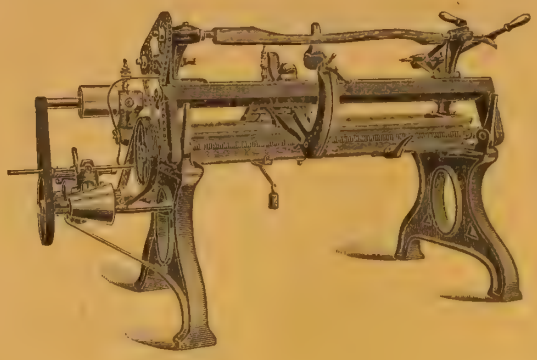
**Burton's** Saws are to be found in Mills, large and small.

We can tell you, or show you, good reasons, for this wide-spread sale.

Ask the Millman down street what he thinks of our saws, and if he is a user, he'll prove to be your best salesman.

Let us send you some facts about saws in general, and Burton's Saws in particular.

**THE A. J. BURTON SAW CO. Limited, VANCOUVER, B.C.**



This cut shows the No. 1 Lathe for turning Axe, Pick, Adze, Sledge, Hammer and Hatchet Handles, Spokes, Whiffletrees, Gun Stocks, Lasts, and other irregular work.

**Simple Strong Durable Economical**

We also manufacture other Lathes for making Handles, Spokes, and Variety Work; Sanders, Shapers, Boring and Chucking Machines, Rip Saws, etc., etc.

Complete Catalogue and Price List Free.

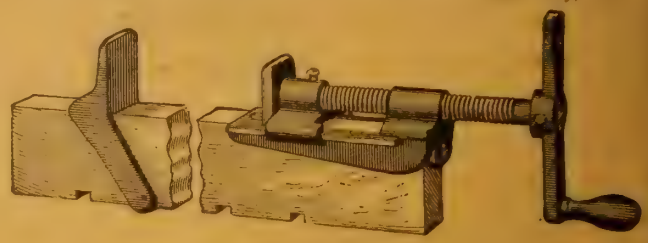
**The Ober Mfg. Co.**

**31 Bell St., CHAGRIN FALLS, Ohio., U. S. A.**

## Clamp Fixtures, Per Set, 50 Cents

Gentlemen :—We are pleased to state that the 25 dozen Patent Malleable Clamp Fixtures which we bought of you a little over a year ago are giving excellent service, We are well satisfied with them and shall be pleased to remember you whenever we want anything additional in this line.

Yours truly, CURTIS SASH & DOOR CO.,
Sioux City, Iowa.



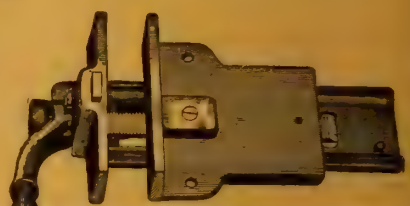
No. 1

STEEL BAR CLAMPS

The bars of our STEEL CLAMPS are especially tempered and guaranteed indestructable. Screws and fitting quickest possible action and made to stand any service or abuse. Don't fail to test sample of this clamp before you buy elsewhere.

Over 26,000 of our Steel Rack Guaranteed Vices

now in use. We solicit the privilege of submitting samples of these specialties on terms that will be attractive to rated firms. Write for list and prices.



RAPID-ACTING WOODWORKER'S VISE No. 3

**E. H. Sheldon & Co., 326 N. May St., Chicago, Ills**

Twelve Spindle

## Universal Boring Machine

Power Feed

Bores all Spindle and Post Holes at one operation in 1,000 1,200 Chair Seats per hour.

Will also do a large variety of boring, using any number of bits from one to twelve.

Spindles adjustable to any angle up to 35 degrees, and from 1" center to center to 24" apart.

Let me send you further particulars.

**J. M. Nash,** 842-848 30th St. **Milwaukee, Wis.**

**Carborundum Knife Grinding Wheels have cut their way into favor in many of the most prominent wood working establishments in the country**

They not only do twice the work of any other grinding wheels—but they do it better and cleaner. They stand up well—do not burn the work—do not draw the temper even from the finest steel. Require almost no attention and last much longer than other abrasive wheels.

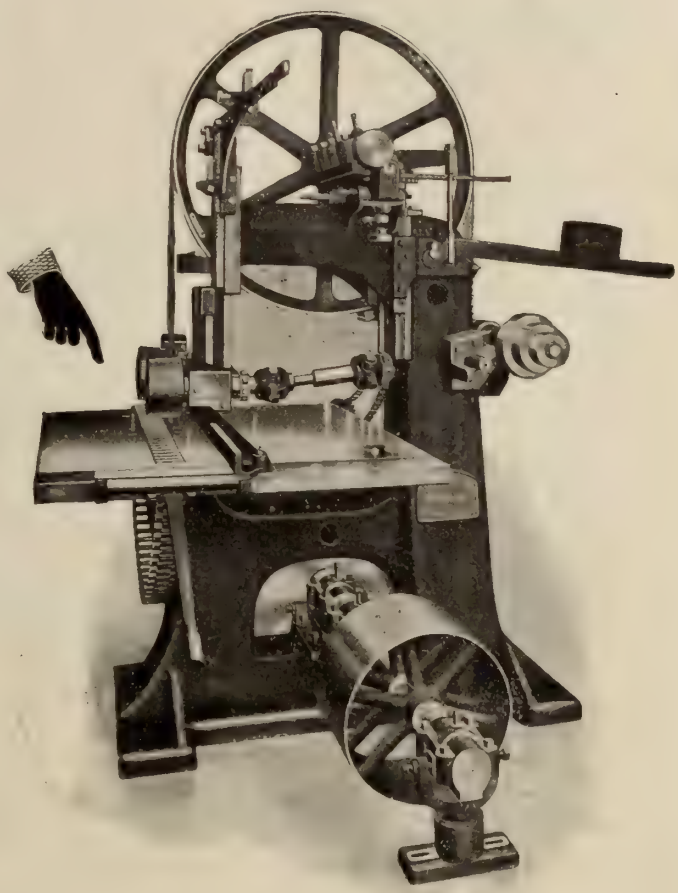
THE CARBORUNDUM COMPANY

Niagara Falls, New York.

# See that Chain !

it's a dollar and cents proposition for you to investigate if you haven't seen it work. That chain will do your **EDGING** better and cheaper than the circular saw you are now using. The big saving, however, comes in here :—

**You edge and rip your stock on the same machine, saving many hours of rehandling as well as the cost of an extra machine and operator.**



**No. 202**
**Self Feed Band Rip and Edging Saw**
Patented 2-27-00—10-2-00—11-19-07—1-21-08

**As an Edger** the No. 202 is far superior to the circular machines because the operator don't have to watch the stock after it is put in. The endless chain, moving in planed ways is operated by sprocket chain and gearing from the same shaft that runs the feed rolls. The cut can't help being straight. Meanwhile the operator can get the next piece ready.

**THE LIGHTNING LINE**

**For Ripping** the chain drops below the surface of the table. The machine is then an automatic band rip saw of the latest type, embodying the three Fay & Egan features, viz, square column, solid lower wheel and knife edge strain, permitting the use of a thin blade at high speed. The result is less kerf waste, greater output and reduced blade cost.

*Our Band Saw Catalogue shows the No. 202 and many others.—Write for it.*

**Main Office and Works:**
**153-173 West Front Street**

**Cinncinnati - Ohio**
**U. S. A.**

## J. A. FAY & EGAN CO.

**Manufacturers of Woodworking Machinery**
**The "LIGHTNING" Line**
**Established 1830**

**SALES OFFICES:**

Atlanta
Baltimore
Buffalo
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Grand Rapids
Chicago
Los Angeles
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San Francisco
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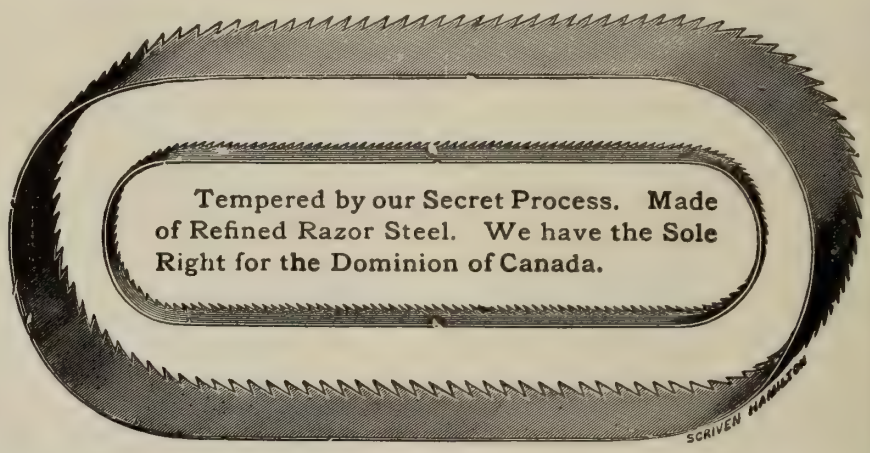
# Maple Leaf Saws

MADE BY

LARGEST SAW MANUFACTURERS UNDER THE BRITISH FLAG

We manufacture Circular Saws Gang Saws Mill Saws Band Saws Cross Cut Saws Buck Saws Saw Setts etc.




We manufacture high-grade **Band Saws** of all Widths and Lengths

These Saws are made of Refined Razor Steel, and Tempered by our Secret Process; for Fine Finish and Temper are not excelled.

**"Maple Leaf" Saws** are the best-tempered saws made

We are the only manufacturers in the world who export Saws in large quantities to the United States

**Shurly-Dietrich, Co., Ltd. GALT, Ont.**

Western Warehouse and Office, Vancouver, B. C.

A GOOD, USEFUL BOOK

## Wood-Working for Amateur Craftsmen

"Written So You Can Understand It" By IRA S. GRIFFITH, A.B.

125 Illustrations 128 Pages
Cloth Cover Size 5 x 7 incees

**Price 60 Cents Postpaid**

This book was especially designed to cover every essential step from the A B C to the X Y Z of woodworking. The chapters dealing with making special articles bring out every cut joint and process used in this important trade, and the proper use and care of tools, working up of materials, etc., are treated thoroughly and plainly.

CONTENTS:

Making Out a Stock Bill—Laying Out Rough Stock—Hand Saws—Sawing with Hand Saws—Planes: How to Set and Adjust the Irons—Squaring Up Mill Planed Stock—Squaring Up Rough Stock—Whetting Plane Irons and Chisels—Grinding Plane Irons and Chisels—Making a Bird Box—Making a Tabouret—How to Make an Umbrella Stand—Making a Magazine Stand—Making a Table—Making a Cabinet.

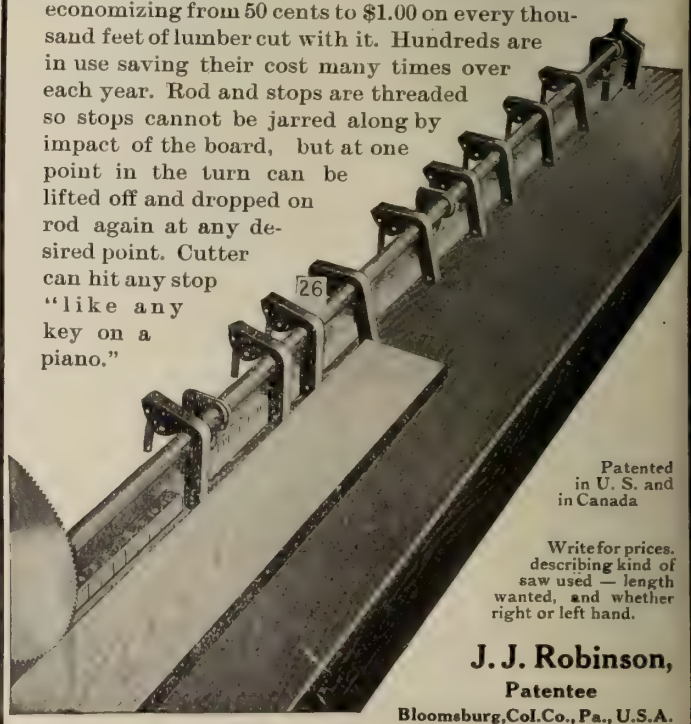
**A valuable book for either self instruction or use in manual training courses.**

BOOK DEPARTMENT

**Canadian Woodworker**

## Robinson Improved Saw Gage

**Made in Canada**—Saving Duty and U. S. Freights for Canadian Purchasers. Sent on 30 days Free Trial. If not entirely satisfactory, send it back at our expense. This Gage will save Time, Material and Mistakes, thus economizing from 50 cents to $1.00 on every thousand feet of lumber cut with it. Hundreds are in use saving their cost many times over each year. Rod and stops are threaded so stops cannot be jarred along by impact of the board, but at one point in the turn can be lifted off and dropped on rod again at any desired point. Cutter can hit any stop "like any key on a piano."




Patented in U. S. and in Canada

Write for prices, describing kind of saw used — length wanted, and whether right or left hand.

**J. J. Robinson,**
Patentee
Bloomsburg, Col. Co., Pa., U.S.A.

# R. H. Smith Co., Limited

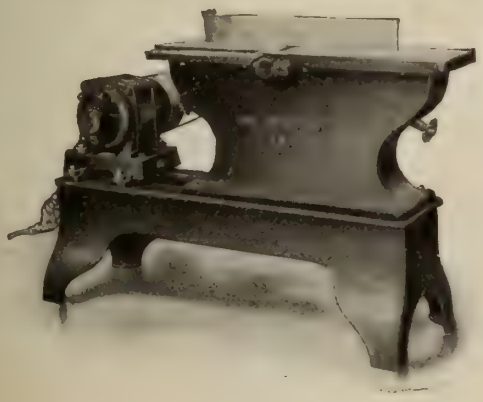
## St. Catharines, Ontario

MANUFACTURERS OF THE CELEBRATED "GOLD COIN" SAWS

**We make Inserted Tooth Saws, Shingle Saws, Cross Cut Saws, Hand Saws, etc., etc.**

**We make every kind of Saw required in Saw Mills, Planing Mills, Furniture Factories, Piano Factories, Carriage Factories, etc., etc.**

We have been manufacturing for the Canadian trade since 1855, and have maintained the same high standard of excellence. Let us know your saw requirements.



"The Porter" Jr. 5" Bench Jointer is ideal in any place where work within its capacity is done.

We equip them to your order with Square or Safety Cylinder, with or without Bench, and with or without Motor.

There is a **reason** why we ship so many of "The Porter" machines into Canada. They are **Quality** machines at **reasonable** prices.

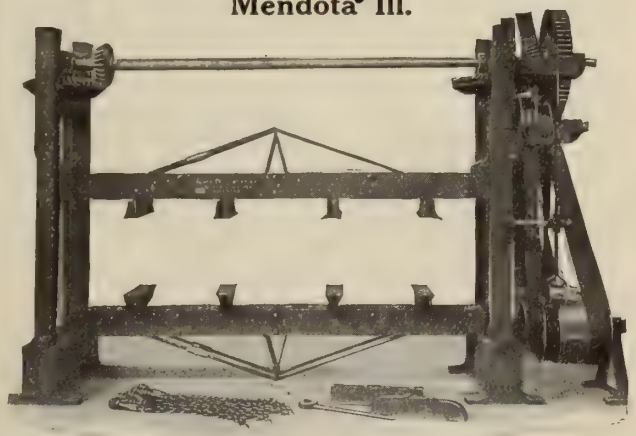
Our catalog J may be of good service to you. Send for it.

## C.O. Porter Machinery Co.,

**Grand Rapids, - Mich.**

## Black Bros. Machinery Co.

**Mendota Ill.**



## A Veneer Press with a Reputation

We would like to give you particulars of this machine, because we can show you increased production and a better finished job. :: :: :: :: ::

**Better let us send you a folder about our Veneer Presses**

# Simonds Saws

All there is to a Saw is

**STEEL,**

**SKILL** AND

**STYLE**

THE Steel that is in a Simonds Saw has meant that to supply it we had to build a Steel Mill comprising seven buildings which, with yards, cover 14 acres of land. This much for the demand for Simonds Steel.

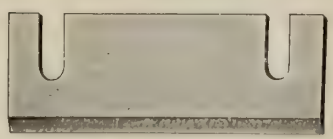
The Skill that is in a Simonds Saw requires for its operation three complete factories; one at Fitchburg, Mass., one at Chicago, Ill., and one at Montreal, Que. The skill is the result of noting and accepting improvements in methods of making Saws, as long as saws have been made in this country.

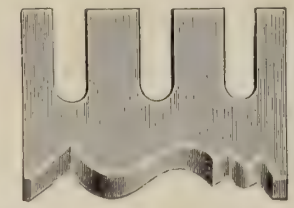
The Style that is in a Simonds Saw comes from a close study of the style of saws necessary for best cutting results under varying conditions. Years of experience in the manufacturing business has developed an ability to select the right saw for any particular use.

The Price that the Consumer pays for a Simonds Saw entitles him to the benefits of **Simonds Steel, Skill** and **Style**, these three together giving results or service which means profit

If you are in the market for any kind of a Saw, Planing Knife, or File, send your order to our nearest office for our immediate attention.

# Simonds Machine Knives





are made in all styles and any desired size. Welded, Balanced, and Finished with the greatest care. Orders promptly filled. Standard sizes carried in stock.

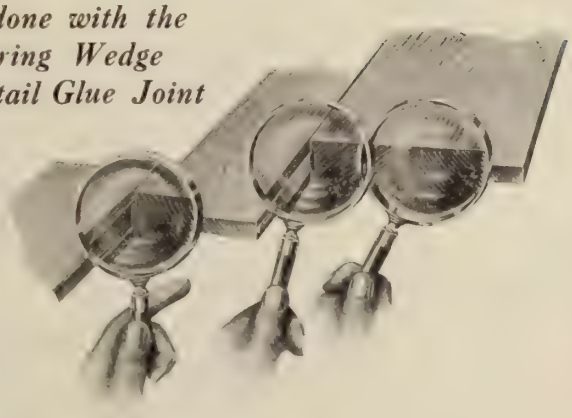
**Factory in Montreal**

## Simonds Canada Saw Co.

**Montreal, Que.** **Limited**

**Vancouver, B. C.** **St. John, N. B.**

*It's being done with the Tapering Wedge Dovetail Glue Joint*



Cutler Desk Co., Buffalo, N.Y.

## *Who Joints Fine Solid Furniture Automatically?*

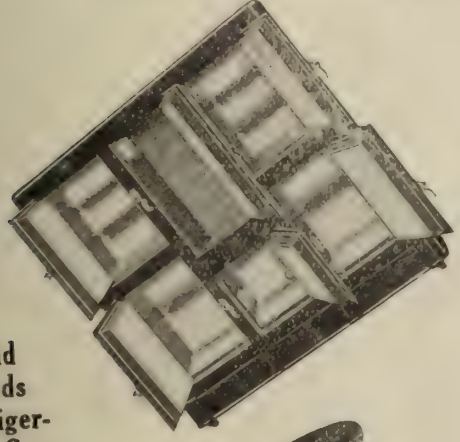
It's a question that has been asked a good many times. Maybe it's just what you have been wanting to know. Thirty furniture manufacturers who make solid furniture with high polish are doing their jointing automatically with a tapering Wedge Dovetail Glue Joint with just one operation, making a short cut through the factory by using the

## *Linderman Automatic Dovetail Glue Jointer*

Here's a solid director's table, six feet long, forty inches wide, white oak or mahogany, made by the Cutler Desk Co., Buffalo, N.Y. There's the Grand Rapids Refrigerator Co.—every one of their tops are made solid—and the other furniture manufacturers here represented, all making their product with a Tapering Wedge Dovetail Glue Joint, because it's principle of dragging the glue into the joint, forcing it into the pores of the wood for an anchorage, makes a joint that is even stronger than a flat or "V" joint. Then the cost of jointing panels automatically is just **eighty per cent. less** than it can be done by other methods.

*Canadian Linderman Co., Limited*

*Muskegon, Mich.* *Woodstock, Ont.*

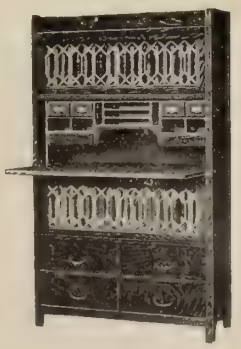


Grand Rapids Refrigerator Co., Grand Rapids, Mich.

J. D. Widman & Co., Detroit, Mich.

S. K. Pierce & Sons
Sheboygan Chair Co.
Nichols & Stone
Bent Bros.
P. Derby & Co.
Greenville Chair Co.
Cramer Furniture Co.

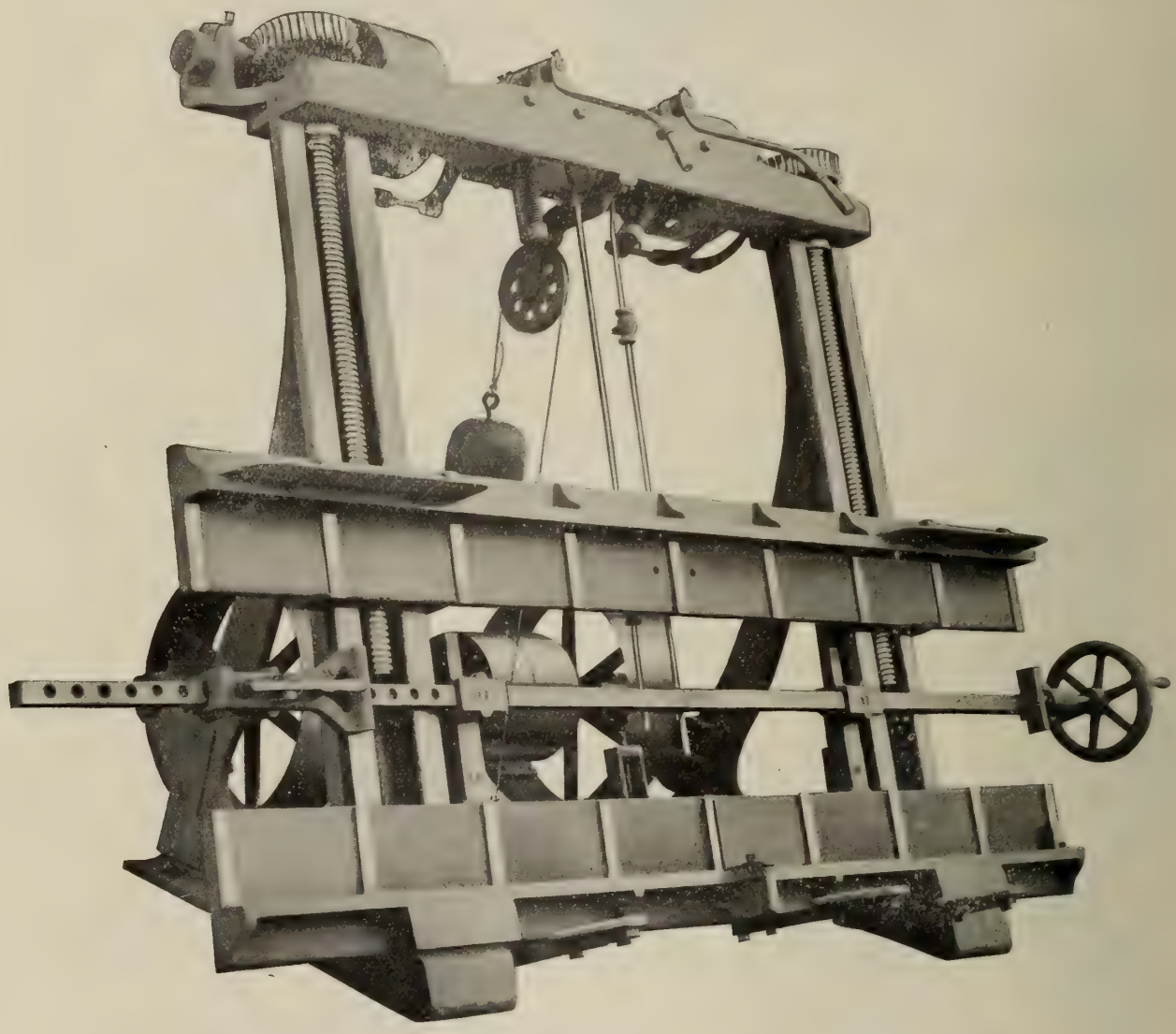
Spiegel Furniture Co.
Shelbyville, Ind.



Gunn Furniture Company

# Canada Machinery Corporation

GALT Limited



**No. 520 Upright Automatic Door Clamp.**

This is a massive, powerful machine, of great capacity, and particularly adapted to dowel doors or blind mortice doors, heavy or light, hard or soft wood, as the pressure can be regulated according to requirements and class of work.

# Canada Machinery Corporation

GALT, ONTARIO Limited

# Canadian Woodworker

**Canada's Only Woodworking Paper**

Published in the interests of Planing Mills, Saw Mills, Furniture and Piano Factories, Implement and Carriage Works, Boxmakers and Coopers.

The Circulation extends from the Atlantic to the Pacific and covers thoroughly all classes of Woodworkers in this immense territory.

**Wooodworker Publishing Co., Limited**

ARTHUR W. DYAS, President and Managing Director
RICHARD PEARCE, Editor
Phone Main 5048
**111 Mail Building, Toronto, Canada**
United States: E. J. MACINTYRE, 4057 Perry St., Chicago.

SUBSCRIPTION RATE.

Canada, United States, $1.00; Great Britain, Australia and other countries 4s 6d., per year; other countries, $1.50. Advertising rates on request.

**Vol. 10 September, 1911 No. 3**


## Veneered Doors and Plant Efficiency

That all veneered doors don't stay "put" is a fact that is already awakening a lively interest among certain manufacturers who have gone into the hardwood door business exclusively and are devoting much attention and spending large sums in an effort to make doors that will stand all weather conditions.

A good many have succeeded in doing this and it must be gratifying to them and those who handle their work.

But on the other hand, the popularity of the veneer door has become so great that, sad to relate, a class of mill men have been tempted to venture into a line of manufacture that requires an outfit they do not possess, with most disastrous results, as the following instances show.

The other morning the route boy was seen to pass the paper through an opening in the bottom rail of a front door. The rail had been made up of two pieces and the joint had opened up to the extent indicated by the above incident.

Another glaring case of faulty door construction was a door of the oval glass type, and which is literally falling apart, and it is worth mentioning that neither of these doors are suffering from unusual weather conditions.

We do not know who made these particular doors, nor do we wish to know. What we are interested in is the fact that other doors are giving the best satisfaction under the same conditions, and we mention the matter because we believe that the manufacture of hardwood doors is a too important part of the woodworking business to be trifled with.

There are a great number of men who are specializing in this class of work. They have spent thousands of dollars in plant and equipment and some are contemplating further improvements.

If the remarkable progress made in this class of wood work is to go on it can only be by leaving it to the men best qualified to do it.

The field is a large one, but if the man with just the ordinary planing mill plant decides to make veneered doors he had better wait until he is prepared to put a first class article on the market. Otherwise he will run a great risk of injuring his trade in the lines he is able to handle, and, while hurting himself he will also be injuring the country's veneered door business generally.

## Trade Conditions Good and Outlook Very Bright

Building operations throughout the country have been and are exceptionally good; consequently, the demand for mill work has been correspondingly active. Mill work people in some of the small towns have been running overtime to keep up with demands coming in from the large cities for sash, doors and trim, etc., of the usual stock patterns. Manufacturers of special hardwood goods, such as flooring and veneered work, also report a considerable increase in the demand for their products. Men who do nothing but custom work inform us that a good many plans have been figured on for work to be delivered this fall.

The furniture factories have been getting a full share of the season's prosperity, and the piano makers also report business as being satisfactory in their line.

Reviewing the situation at this time there seems to be a firm feeling that business in the various woodworking industries will remain unusually active right through the coming winter.

## Value of an Industry

An interesting and accurate calculation has been made of what an industry employing 1,000 hands means to a community:

It increases the population by 5,000 consumers.

It adds $90,000 to the value of public utilities.

The assessment is increased by $600,000.

It pays out annually in salaries and wages $559,800.

It represents through its buildings and the houses of its employees an investment of $2,000,000.

The annual expenditure in food would be $63,000 in meat, $9,600 in potatoes, $5,000 in sugar, $18,250 in milk, $65,700 in butter, and $27,600 in eggs.

Summed up, this means that an industry employing 1,000 hands is worth $221,600 a year to the farmers of the district.

The expenditure in clothing would be $168,750.

With the annual payment of taxes added to the total expenditure on buildings, food and clothing, you have in all $2,428,350 turned into the town in one year through the coming of one great industry. In conclusion, one may again note the prodigious results which are affected by the presence in Canada of some 435,000 artisans. In round figures these men would mean at least $1,056,322,250 to the Dominion.

An industry employing 1,000 hands may be regarded as a large one, but the same percentage of results would follow in larger or smaller plants, so that one can easily begin to reckon for himself what any particular industry would mean to a town or city.

# The Exhibition Stands for National Progress

No one can over estimate the benefits accruing from Canada's annual national exposition held at Toronto. As a trade condition index the exhibition is unparalleled. Its prosperity but corresponds with that of the whole country, but aside from this, each year it is more nearly attaining the fulfillment of its set purpose, that of stimulating industry and production in all the varied pursuits of this wide-spreading and energetic nation.

The industrial displays showed a marked advancement over those of last year, and while this is said every year, it is none the less true. In the woodworking machinery departments the exhibits, while not as extensive and comprehensive as could be wished, were in every way high class and decidedly attractive, particularly to the men whose daily work causes them to take a deep interest and regard in the modern improving appliances.

The new devices, the new attachments, and the new machinery drew much attention, especially the appliances expected to reduce costs and accident chances, and increase efficiency and excellence of production.

Next year Machinery Hall will be considerably enlarged, and exhibitors will have much better opportunities of displaying their products, as well as more room for bigger exhibitors.

For those who were unable to attend the exhibition and observe for themselves the wonderful progress made in the machinery end of the industry, the Canadian Woodworker is in this issue presenting several views depicting the latest inventions in woodworking appliances as shown at the Toronto fair

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### The Linderman Automatic Dovetail Glue Jointer

At Canada's Greatest National Exhibition

Nearly a million people visited Toronto Exhibition this year, and a careful estimate of the people who saw this truly wonderful machine is said to be not less than five hundred thousand.

In justice to the Linderman Company it is only right to explain that it was their intention to show a perfect and complete working machine, but owing to some misunderstanding sufficient space could not be secured for the purpose. So rather than disappoint the people who had been looking forward to a practical demonstration, it was decided to accept space along with the W. H. Petrie, Ltd. exhibit for a model only.

That this idea was an excellent one has been proven by the fact that the large number already stated saw this machine and carried away with them a full knowledge of what it will do and the enormous saving it accomplishes.

Perhaps the last word used is the secret of the unparalleled success of this machine. It accomplishes just what the makers claim for it.

A first glance at the machine gives an impression that it is rather complicated. This is not so as may be found on a close inspection, and in that respect is not unlike many other things that seem difficult at first.

For the benefit of our readers living at great distances from Toronto and for various other reasons, could not enjoy along with their fellow woodworkers the pleasure of a personal view of the machine, we are giving a brief description of some of the work this machine is doing. Every day in numerous factories throughout Canada and the United States.

Linderman Automatic Dovetail Glue Jointer.

The Linderman Automatic Dovetail Glue Jointer is a machine that makes wide boards out of strips, also it automatically, of course, takes care of short cuttings and makes them up into boards to be used for cores for veneer work. Also it will make a perfect joint on any kind of hardwood and it is well to note that the joint is slightly tapered. This allows for the proper distribution of the glue which is also spread automatically. It requires no highly skilled labor as the method is simply a matter of taking two boards of equal lengths of random widths and feed into opposite ends of the machine. In the operation the dovetail is cut, the glue spread and the pieces forced together, making a completed joint.

This piece is passed back through the machine and another board is joined to it and so on until a board of the desired width is obtained. All this of course means economy, and that is what the keen business man is looking for. It is undoubtedly one of the best money savers to be had to-day by any one engaged in the woodworking industries no matter if the line be box making or the manufacture of the highest grades of piano or furniture work.

**Canada Machinery Corporation Limited of Galt**

This company had a fine line of machinery on exhibit which received much favorable comment from the woodworking machine-hand.

One of the machines seen was a fine type of chain mortiser designed for the rapid and accurate mortising of all kinds of lumber used in sash, door, blind and furniture factories.

It is almost noiseless, but what appealed to the woodworker is the construction of this tool. By a special device on this machine the operator can work a full day and feel no jar whatever. This is a feature that commends itself to the manufacturers also, as it means more work from day to day because the operator is as fresh at night as in the morning. It's a pleasure, not work, to operate a Canada Corporation chain saw mortiser.

The glue jointer shown is a marvel of simplicity. The feed is continuous and of a very wide range of work. The following brief description will give a fair idea of its capacity. It works material from a ¼ to 3 inches thick and from one inch up to any width, and six inches up to any length desired. It is well to note that a machine to take 4 inches thick is built by this company.

Some of the special features noted about this machine is the chip breaker. It is easy of adjustment.

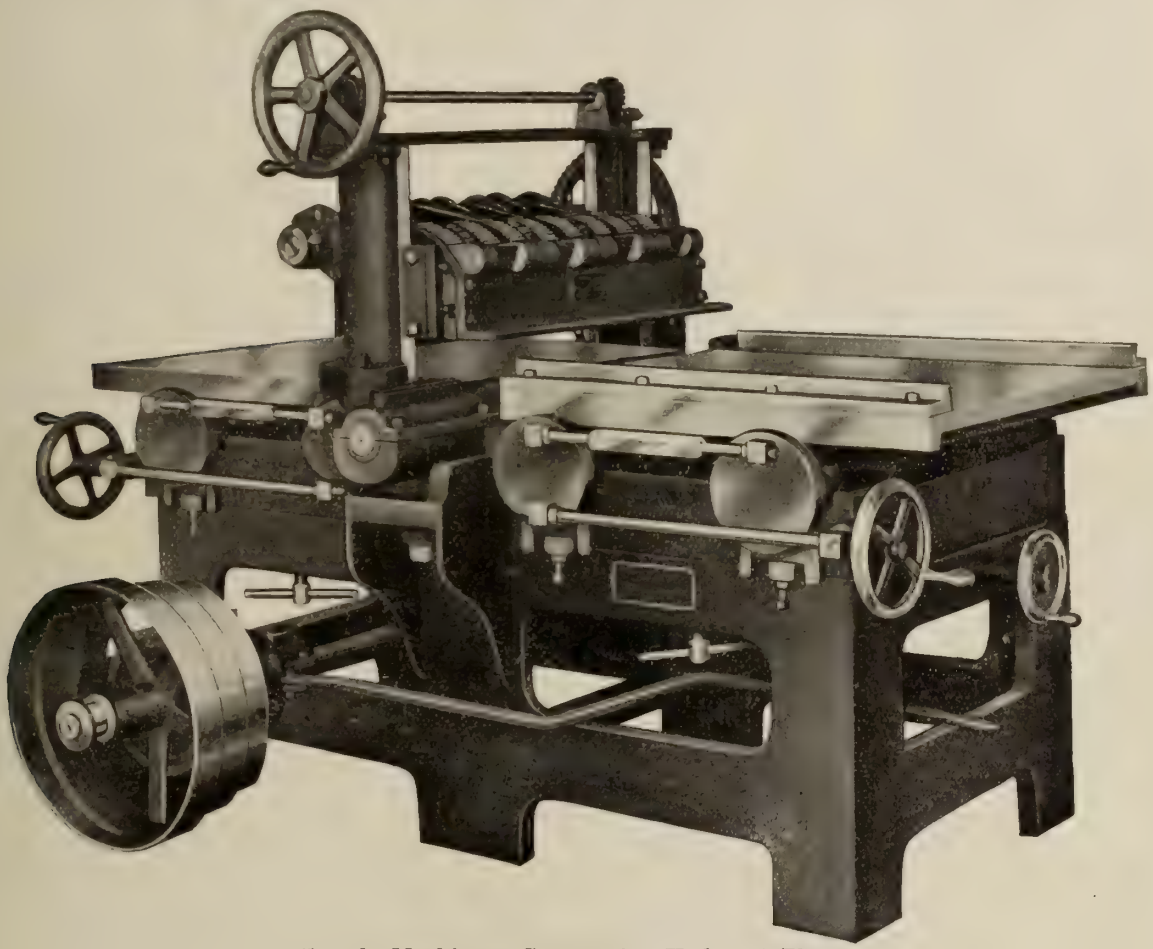
Then too all the bearings are oiled from the outside, therefore it is not necessary to stop to oil up many parts. We understand that a large number of these machines are in use and giving entire satisfaction.

Another machine shown was an undercut planer. It is claimed that it will do as much work as three or four ordinary buzz planers. It is a good machine for taking stock out of wind and will take care of short stock as well as long.

It is a safe tool to work as it is almost impossible for the fingers to come in contact with the knives.

The firm had also an excellent heavy surface jointer on exhibit showing the undercut self-feeding attachment. It is a marvel and is perfect in every way as is clearly demonstrated by the fact that upwards of thirty of these attachments are in actual daily use and orders are coming in every day for more.

Next year Machinery Hall will be greatly enlarged. This will give this deservedly popular company a better opportunity of displaying to better advantage a more and varied assortment of woodworking and other machinery manufactured by this well known Canadian company.



Canada Machinery Corporation Undercut Planer.

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**Trade Inquiries**

1. **Machine belting.**—A London firm of experts desire to appoint Canadian agents for the sale of machine belting.

2. **Birch framework.**—A London manufacturing firm ask to be placed in communication with Canadian manufacturers of birch framework for deck and similar canvas chairs. Material is required cut and shaped ready for simply putting together.

3. **Furniture.**—A South African firm of manufacturers agents desire to be placed in touch with Canadian manufacturers and exporters of school and church furniture, and chairs for halls.

### Downers Combination Disc and Drum Sander

At the Canadian National Exhibition, Toronto

The view shown herewith conveys a good idea of a new machine that not only attracted but held the attention of all classes of woodworkers who had the good fortune to see it in actual operation in the Machinery Hall.

The machine is designed to meet the requirements of pattern makers, furniture and mill men. In fact, it is a machine that will prove useful to manufacturers engaged in any and all departments of woodworking, as the following brief description will show.

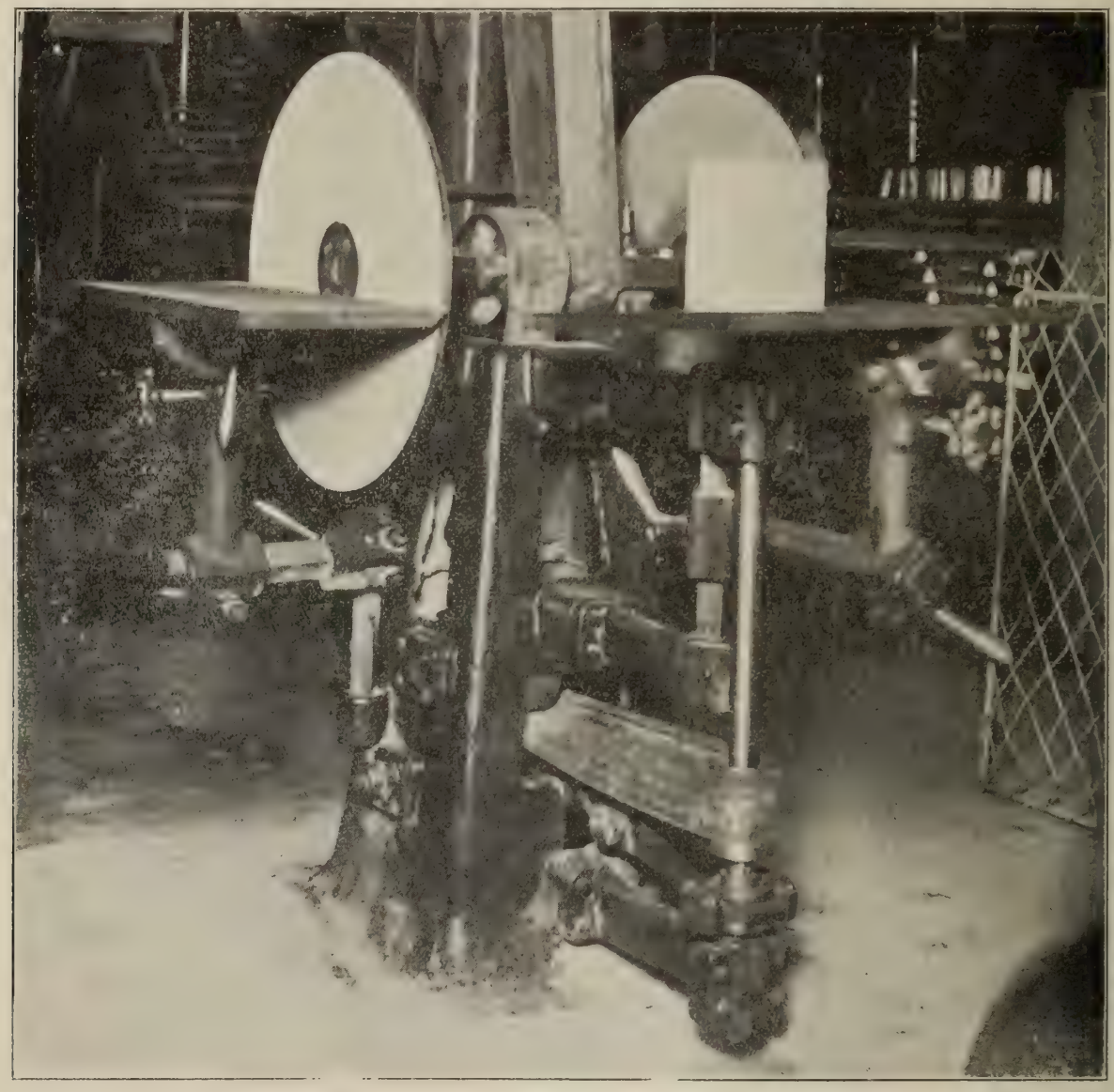
The maker claims this to be the only combination sander with a vertical drum, in combination with a double sided double disc. Thus, three operators may have the use of the tool at the same time. No one will question this advantage.

Another feature noted is the oscillating motion of the drum. This ensures absolutely perfect work on circle stock such as balusters, chair backs, and work of a like nature.

It would occupy too much space to mention all the good features of this machine, but it is well to call attention to the tables which are so arranged that they may be set to any angles, and either way at that, up to forty-five. They are locked by means of a lever nut.

The equipment that goes with each machine is: three double sided discs, twenty inch diameter, and four drums each a different size. We are informed that three of these machines were sold at the exhibition and it is altogether likely that thirty more will be sold in the course of a few weeks.

This machine is built at the Downer Pattern Works, 116 Adelaide street West, Toronto.



Downer's Combination Disc and Drum Sander and Grinder.

### American Factories in Canada

In the absence of government statistics showing the number of American factories which have established branches in Canada, the Montreal Star, after a careful canvass, reports a list of no less than 184 with a combined estimated capital of $233,000,000.

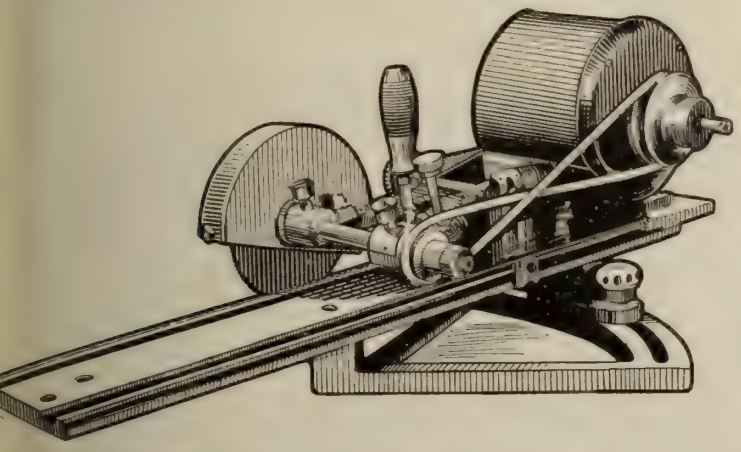
Some of these are well known and their coming has been widely announced. The city of Hamilton alone has 15 branches, while in Montreal there are 19, and in Toronto 63. There are no statistics showing the number of persons employed, but it is clear there are many thousands. Two factories in Hamilton alone employ 5,000.

### The Elliott Woodworker at the Canadian National Exhibition

Among the many items of interest in the exhibit of woodworking machinery at the Canadian National Exhibition this year we noticed the Elliott Combination Woodworker. This machine came in for passing notice last year, but we were so much struck by the many evident improvements in design, material and workmanship that we are forced to give greater space and more attention to details, in bringing to the notice of our readers this excellent machine which is fast making for itself an indispensible position in the equipment of every woodworking establishment.

The "Elliott" is simple in construction, light and compact and has a greater capacity considering its size than any other combination woodworker on the market to-day.

The illustration shows the "Elliott" with motor attached. It is operated by a hand lever and the carriage is equipped with roller bearings and slides on a planed bed with V ways. It has a radial movement of 90 degrees for mitreing and trimming at any angle, with a stroke of 18 in. and a cutting capacity of two inches thick.



The Elliott Combination Woodworker

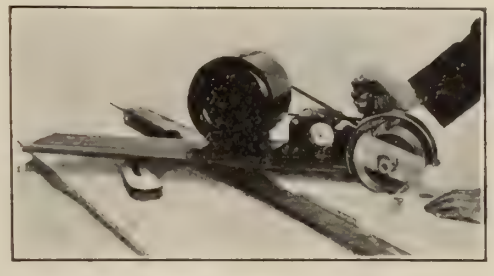
The equipment consists of rip and cross-cut saws, dado heads, boring chuck, machine bit, emery wheel and floor sanding attachment. The motor can be attached to the ordinary incandescent lamp socket. This is very convenient as there is no necessity for high voltage wires and transformers, and the machine can be operated on any house job where the customary lighting current is used.

Perhaps the most noticeable feature of this machine and one that will be appreciated by the practical workman is its adaptability as a Stair Router. When employed as such its construction permits the operator to keep the work in view all the time this increasing its accuracy and efficiency. With the usual type of machine for this purpose it is impossible to do this as the work is placed under the table and routing is directed from above by means of a guide attached to the table.

There is a heavier type of this machine manufactured which is designed solely for shop use, and is constructed with a solid iron table.

Our reporter was informed that a good many of these machines have been placed locally among prominent woodworking establishments in the city, and that there are quite a number of inquiries received from contractors and builders, carpenters and woodworking shops all over the province.

The machine is manufactured by the Elliott Woodworker Company, 744 Bathurst street, Toronto, and the fact that that energetic and enterprising firm of machinery dealers, the A. R. Williams Machinery Company of Toronto have guaranteed to take the entire output of this factory is an indication of the practical value of this machine and augurs well for its future position in the industries of this country.



The Elliott Woodworker with Dado Head

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### Shurley & Deitrich Co., Ltd., at the Canadian National Exhibition

The display made at the exhibition by this well known firm of saw manufacturers was a handsome one in more ways than one, because in the first place it was arranged in a very artistic manner, and in the second place, so that a view of all the saws could be seen to the best advantage.

There were all kinds of saws—thin saws and thick saws, band saws and circular saws of every description. Ranging from the fine trim saw to the largest saw ever seen.

And gathered about this remarkable display was to be seen at any time during the two weeks the exhibition lasted, sawyers of many years' experience who talked learnedly of tensile strength, elastic limit, solid teeth, inserted teeth, and saws for cutting kiln dried lumber, frozen logs, etc., in a way that must have been very confusing to the layman.

But the interest was not confined to them by any means. The retailer was there too and exchanged notes with other retailers as to how many of the Shurley Deitrich saws he had sold during his business career. And more than one carpenter was heard to say how many 3 x 12 joist they had cut in a certain time with a saw of that firm's make. All of which goes to show that the merits of this company's saws are well and favorably known to not only sawyer but to all classes of men engaged in the woodworking business.

It was an excellent showing of a popular firm's goods.

---

A man, like a knife or a saw, can have too little temper as well as too much. We should not be soft enough to batter and turn easily, nor hard enough to crumble or break. It frequently behooves one to try and fit his temper to the services he wishes to render.

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Two-thirds of the world's oil production was contributed by the United States last year.

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A little oil will soften a belt and make it run better, but that is no reason for giving it a bath when oiling the slack pulleys.

### The Canada Metal Company, Limited, at the Canadian National Exhibition

One did not have to enter the Exhibition to know that the Canada Metal Company were exhibiting there. Just before you entered the main Dufferin street entrance to the Exhibition one noticed the big sign of the Canada Metal Company lit up with many electric lights and telling the people of many of their lines. On the top of this sign was a big tin man about fourteen feet tall.

On entering the centre door of the Machinery Hall on the left the company had their exhibit. It was well lit up and was in charge of Mr. W. G. Harris, general manager, and other representatives of the company. They were there with the glad hand. Any one, at least interested in metals were shown carefully over the company's lines and all the points explained.

The exhibit consisted chiefly of Babbitt Metal. The Canada Metal making a special metal called the

W. G. Harris, President of Canada Metal Co., Ltd.

Offices and Factory, Toronto

W. G. Harris, Jr., Vice-President

Exhibit of Canada Metal Co. at Exhibition.

Harris Heavy Pressure Bearing Metal for woodworking plants. This metal is put up in round cakes copper-coated, is well known to the trade and is now used from coast to coast.

They also showed their Imperial Genuine for main engine bearings.

The exihibit also consisted of solder, brass castings, fuse wire and all ingot metals. Without doubt

Cut No. 1

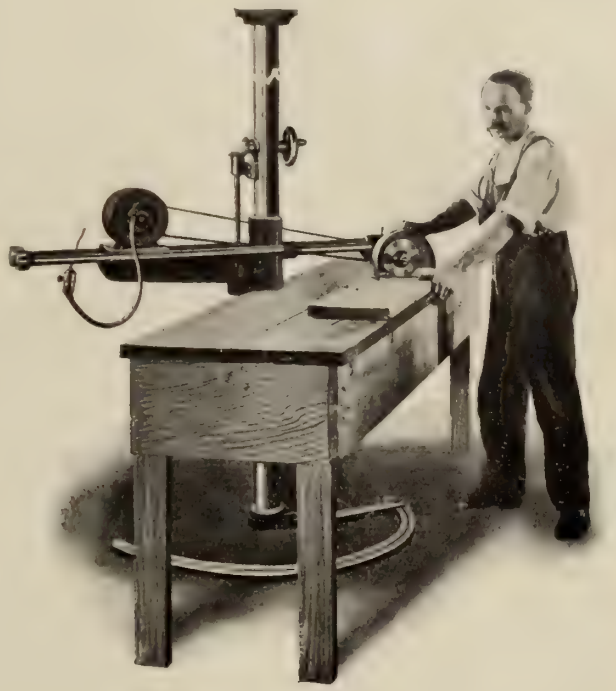
this was a fine exhibit and one can get a slight idea of its appearance by the above cut.

The company are now in their new factory on Fraser avenue built especially for them and planned for the purpose of turning out large tonnage.

Cut No 2

**The Hutchinson Portable Combination at the Canadian National Exhibition**

Mr. Mackintosh of 398 Queen street East, Toronto, is showing a practical combination woodwork-

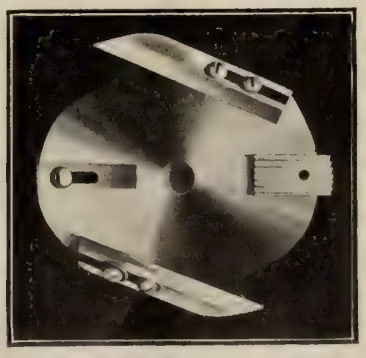


Cut No. 3

er of entirely new design, which has deservedly attracted considerable notice at the Exhibition and should prove of interest not only to carpenters and builders but to all other woodworkers, wherever electric power is available.

The machine as shown in Figure 1 is of the simplest possible construction, consisting merely of a centre post secured to the floor below and to any conveniently situated beam above by flanges, carrying a cast iron sleeve provided with lugs through which run two steel rods carrying the motor and saw arbour. The machine therefore can be set up in any shop or on any job in about one hour and once set up it will be found possible to do as much work with it in an hour as a carpenter can do by hand in a day and moreover this machine does not require a skilled mechanic to operate it; any handy man can work it.

This machine is particularly adapted for all kinds

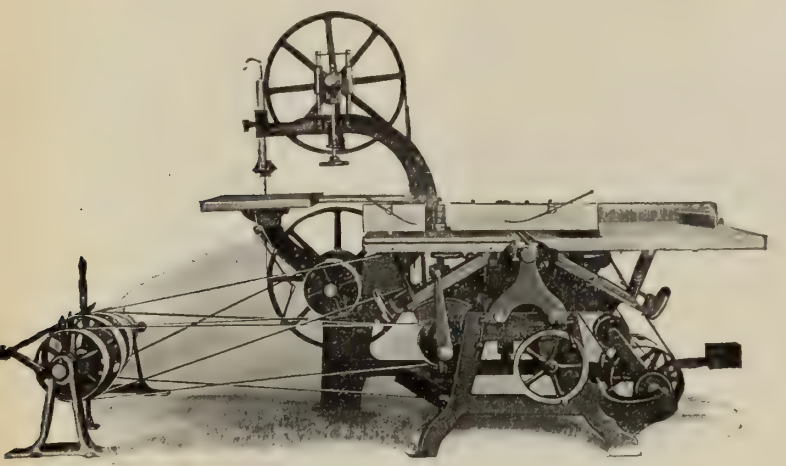


Cut No. 4

of every day work in any carpenter shop (see fig. 2) including the cutting of studs, joists, rafters, braces and bridging, boring for dowelling, tenoning, tadoring pulley stiles, window sills and door panels, mitreing of any kind, wood turning, tool grinding, &c.

In figure 3 it is shown making stair stringers by means of a specially constructed dadohead (fig. 4) and in this work alone the machine can be relied upon to very quickly save its cost.

For simplicity of construction, efficiency, durability, portability, rapidity and accuracy of working there is no other machine on the market, so the makers claim, to equal the Hutchinson Combination



No. 14

Woodworker and consequently no carpenter or other woodworker can afford to be without one.

Finally its reasonable price cost and and its economic consumption of electricity bring this machine within reach of all and we can confidently recommend an early application to Mr. Hutchinson who will be pleased to furnish lowest prices for cash or credit and all other particulars.

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**Views Showing the Famous Universal Woodworker as Demonstrated in the A. R. Williams' Exhibit at the Canadian National Exhibition**

The accompanying cuts show the Famous Universal woodworker. A wonderful machine manufactured by the Sidney Tool Co. of Sidney, Ohio, in many ways, combining sixteen machines in one. It naturally attracted a great deal of attention from manufacturers who have to study economic conditions that make such a machine an absolute necessity.

It is very simple and easily understood, and any ordinary machine hand or woodworker would be able to accomplish a great and varied amount of work in a given time. This was demonstrated in a very convincing and forcible manner to the large number of woodworkers who had the privilege of seeing the tool performing work usually done on the rip saw, cutoff saw, the planer, jointer, etc.

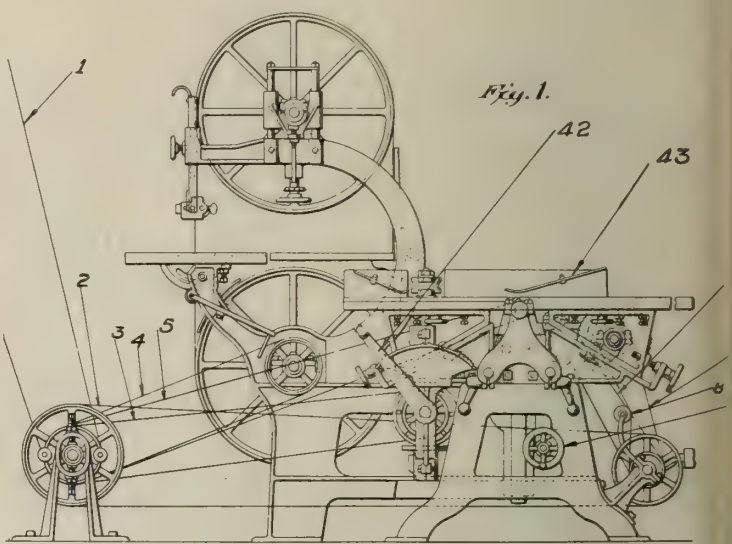
A glance at the illustrations will convey a good idea of the range of this tool.

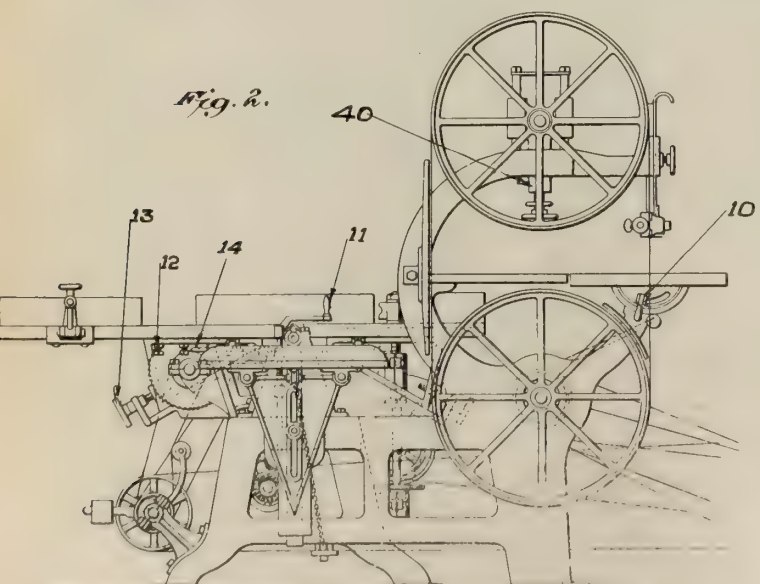
It is constructed so that the different set ups can be done rapidly. It takes up very little space, and as more than one man was heard to remark, is a complete and perfect woodworker.

It is well to note that the range of the machine is not confined to sixteen varieties of work, as other attachments can be had at slight cost.

The illustrations give a very comprehensive idea of the machine when set for various classes of work.

No. 14 shows Universal Woodworker Reversible Friction two-way shaper attachment, Cut No. 2. Figure No. 13 shows hand wheel for operating the raising blocks. Figure 12, saw in position on saw arbor. Figure 14, raising and lowering saw arber. Figure No. 11, crank for operating the boring attachments. Figure 10, clamping lever for hand-sawing. Figure 40, spring attachments for band saw blade, cut No. 11. Figure No. 15 shows




foot lever for operating table. Figure 16, speed boring spindle. Figure 18, mortising table. Figure 17, boring end of jointer spindle. Figure 19, ripping force on saw table. Figure 20 bevel cut-off gauge on saw table. Figure 21, slot in saw table where saw operates. Figure 22, hold-down spring on jointer fence. Figure 25, shaper head. Figure 24, shaper fence.

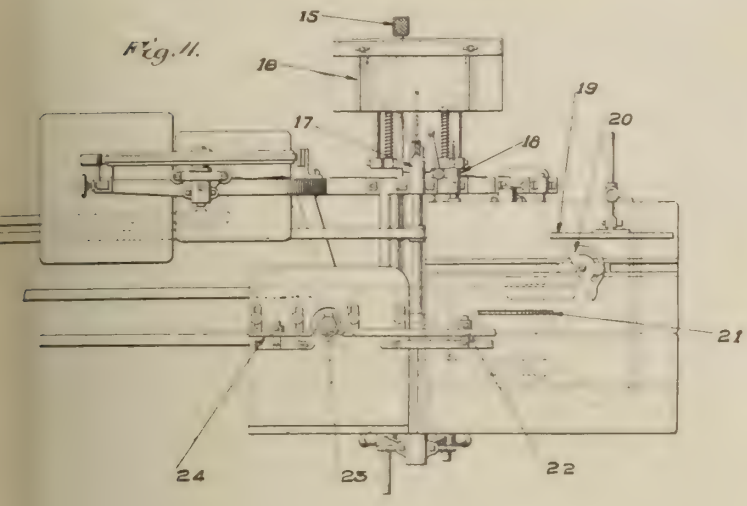
Cut No. 3. Figure 44 shows jointer table. 45, saw table. 46 shows boring spindle. 47, boring table.

Cut No. 7. Figure 25 shows outside bearing for jointer spindle. 27, shaper head on reversible shaper. 28, hollow chisel bit. 29, Chain for operating hollow chisel table. 30, screw for clamping boring attachment in position. 41, bevel gear for raising and lowering saw arbor.

Cut No. 8. Figure 31 shows jointer arbor. 33, saw table arbor. 34, Jack shaft. 35, Pulley driving jack shaft. 37, pulley for driving saw arbor.

Cut No. 1. Fig. 1 shows belt running from line shaft to countershaft. Fig. 2, belt running from coun-

teshaft to Jack shaft. Figure 3, belt running from countershaft to shaper. Figure 4, belt running from countershaft to band-saw, which is a cross belt. Figure 5, belt running from countershaft to jointer. Fig-




ure 9, hand wheel for raising and lowering saw arbor. Figure 8, idler for saw arbor. Figure 42, lever for operating reversible shaper. Figure 43, spring bar for jointer.

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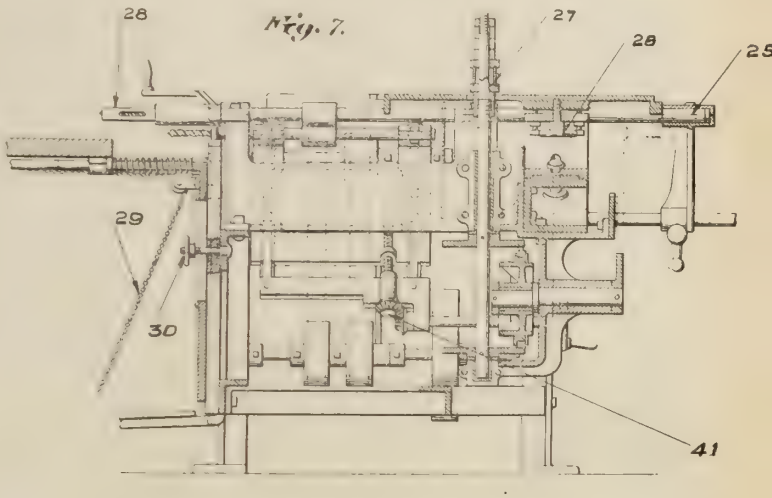
### Cooperage in China

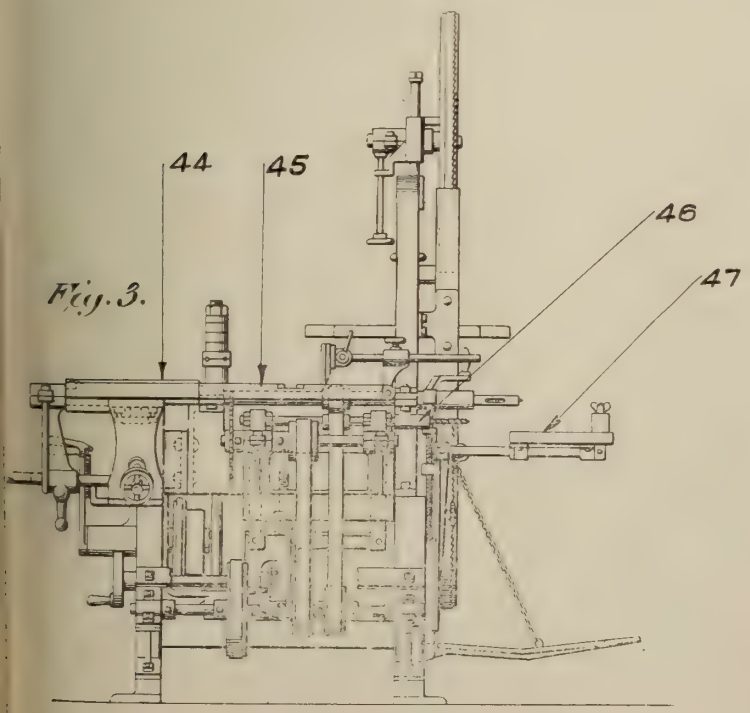
That the Celestial Empire is a country of vast reserve and enormous resources is a recognized fact, but it will hardly be developed to any great extent during the present generation, that is, its possibilities will never be fully realized by men now living. But that there is an enormous commercial field for products that can now be used in every day life is slowly being realized by the Occidental world, and China is awakening from her slumber of centuries.

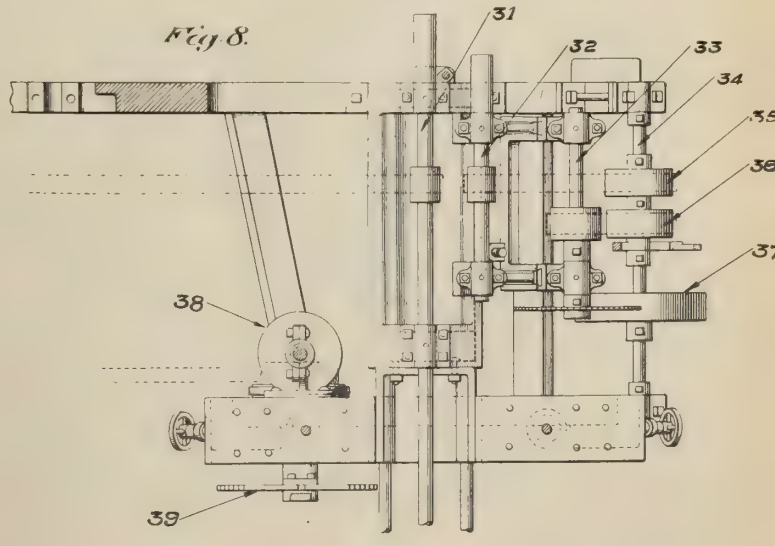
The developments of the past few years in fields that concern the cooperage trade have been no less than astounding. If a barrel man was asked two or three years ago if he was doing any business in soya bean oil barrels he would probably state that he did not understand Chinese or would consult the diction-




ary, which would do him no good, for soya bean oil was not known when the last lexicographer closed his forms. Yet to-day a crop of soya beans in Manchuria is raised that yields oil requiring some 1,300,000 barrels annually to transport. In the south of China, an oil known as China wood oil or Chinese nut oil has sprung into prominence. Hundreds of thousands of barrels are shipped to all parts of the world yearly. Of late large quantities of Chinese pork, tallow and lard have been reaching the London markets and there is an unbounded area of production.

Quite naturally something had to happen in the cooperage trade to the Far East—and it did happen. The oil firms are now purchasing enormous quantities of staves in the American markets, shipping them to the Orient and setting them up in their own cooperage shops. The accompanying illustration represents a new cooperage shop or "godown" of a prominent oil mill in the south of China. Here in the vitw are thousands of barrels, and this is but one of the cooperage plants of the concern referred to. The "godowns" are built close to the river bank or bund, where steamer loading is easily done with a minimum of the rehandling which was necessary in the old days.



# Noticed on the Editor's Travels

### John Davidson, Smith's Falls

A great deal of building is going on in Smith's Falls, and the above firm are certainly getting a big share of the business of supplying the finished work, both in hardwood and pine. They also make sash and doors and keep a splendid stock of lumber, lath and shingles. This has been a very prosperous season, and Mr. Davidson is looking forward to a busy fall.

### E. Ward, Peterboro

Mr. Ward is another mill man who uses electric energy to run the machines he uses in producing office and store fittings, doors, sash, moulding and bill stuff.

Mr. Ward is, moreover, a dealer in builders' supplies, in fact there is nothing that enters into house construction that cannot be found at Ward's.

We asked him what he had to say about business —this is his reply: "It's just right."

### The Mann Lumber Company, Limited, Peterboro

Business is rushing with this company, and the signs all point to continued good times.

This firm is very popular and do an immense trade in sash, doors and blinds and interior finish work, in the manufacture of which they use the best materials to be had. The workmen, too, are all highly skilled, and take a personal pride in turning out work of the very highest quality.

### Louis E. Hall, Port Hope

Mr. Hall is a general contractor who also does a big trade in sash, doors and mill work of every description, and is doing a large business, especially in lumber and dimension stock, lath, shingles, etc.

### W. R. Chislett, Port Hope

Mr. Chislett is one of Port Hope's most successful builders, and he also runs a fine little planing mill in which are some new machines run by electric motor power.

"Business is good and will be right through the season," says Mr. Chislett. Port Hope is an excellent manufacturing town with a bright future.

### Trenton Cooperage Mills, Limited, Trenton

This is one of Trenton's most important industries. It gives employment to almost two hundred men and is one of the most up-to-date cooperages in Ontario. The yards and siding occupy sixteen acres; added to this is about two acres of water for booming purposes. The plant is equipped with modern machinery and is driven by both electric and steam power—of the latter 180 lb. is used. The output is shipped all over Canada.

### Be Precise and Avoid Trouble

I was in a planing mill the other day when a man brought in a load of 2-in. and told the planer hand he wanted it dressed to 1¾ plump.

In the same mill I heard the forman giving instructions that a certain number of boards were to be ripped 5⅞ slack, then dressed one side to ⅞ stout.

This is a careless way of giving orders. Why not state exactly what width and what thickness the material is to be worked. No two men's ideas of plump, slack or stout are just alike and carelessness in this respect often leads to argument, occasionally a great deal of profanity, and always unnecessary and uncalled for trouble.

### Beading Both Sides of Hanging Stiles

Sticking a bead on both sides of hanging stiles—alternate edges, of course, is not so customary as one would suppose. This seems strange, as most mill men are striving to economize, and in the effort, a number of planing mill men are furnishing a square hanging stile, claiming for it two distinct advantages, first, either edge may be kept to the front; second, it does away with mitering. We admit the points, but in other communities the demand calls for a beaded hanging stile and the demand must be met, and often at a loss to the mill man.

Here's an instance. A short time ago the writer was in a mill and noticed a man beading—on the shaper, some faulty pieces that the man on the cut-off saw had laid aside. This meant a lot of work that might have been prevented had the molder man, when running the stock, thought of putting a head knife in the under head.

### A Few Hints

Rubbing varnish should have at least two days for drying before rubbed out.

If the waxed floor has become dingy looking, do not try to scrub it clean with soap and water, but get some steel wool and dip a handful in some turpentine and go carefully over the floor, using cotton waste for wiping up with after the wool. The turpentine will soften the old wax, and then the cotton will remove it. After cleaning the floor in this way apply a coat of wax in the usual manner.

The cause of varnish blooming on furniture, quite a common occurrence, one often seen on highly polished work, may be ascribed to the sweating out of the oil from the imperfectly polished surface. This oil united with dust makes the bloom. The best remedy is to rub it with a soft leather or chamois skin slightly moistened with water and with a uniform pressure. Do this once a week or until the bloom disappears.

### Useful Hint Concerning the Hollow Chisel Mortiser

When kept in proper working condition there is no better paying tool to be had than the hollow chisel mortiser. But, lack of knowledge or carelessness, perhaps a little of both, has often led to disappointments.

It is not unusual to find the chisel very badly burnt. There are several reasons for this: it may have been caused by over-crowding when working through a knot, or by the bit not being properly adjusted, but most frequently by the careless manner in which the chisel is sharpened—by some men who have the habit of rubbing off the bur with the oil stone.

Hollow chisels are made with a very slight taper, just enough to permit of a free entrance into the wood. The sharpening should be done from the inside only, and when adjusting, allow the lips of the bit to project three thirty-seconds beyond the edge of the chisel.

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### Strength of Shafting

Do you know anything about the strength of shafting in a general way, and especially its capacity for transmitting power? Unless you have been long a student it is very likely you do not, and hence an effort will here be made to give you a simple primary lesson.

In architectural, general structural work lore, a shaft would be classed a round beam, and the architect will tell you that the sustaining strength of round beams, supported at both ends and loaded between, is as the cubes of their diameter. By this you will note that strength increases with much greater rapidity than size. As an example, a round beam 10 inches in diameter possesses a weight sustaining strength equal to 8 times the weight sustaining strength of a round beam 5 inches in diameter. It will be seen that although the diameter is but double and the volume of material increased four times, yet the strength has been increased eight times in the change from a 5-inch to a 10-inch round beam. The reason is, as above explained, the cube of 10 equals 8 times the cube of 5.

The strain to which beams, round or otherwise, when sustained dead weight are subjected, is known as transient strain, while the strain due to the work being done by revolving shafts is called torsional strain. The same natural law, however, applies to both forms of strain. Shafts resist torsional strain and transient power in proportion to the cubes of their diameters. Hence, as with the round beam, a shaft 10 inches in diameter has a torsional strain resistance equal to 8 times the torsional strain resistance of a shaft 5 inches in diameter.

But while the resistance capabilities of the beam is a fixed and unvarying factor, the resistance of the revolving shaft is a variable factor. Therefore, although, as we have shown, the strength of the 10-inch shaft equals 8 times the strength of the 5-inch shaft, the 5-inch shaft may be transmitting more power than the 10-inch, the one being at work in one capacity, the other in another capacity. Thus, for instance, a 5-inch shaft running 200 per minute equals, in power transmitting capacity, a 10-inch shaft running 25 times around per minute. If the speed of the 5-inch shaft is increased, raised above 200 and the speed of the 10-inch shaft is kept at 25, the smaller shaft will transmit more power than the larger.

If the speed of the smaller shaft be increased to 400 revolutions it will transmit twice the power of the larger shaft at a speed of 25 revolutions per minute. The student will now understand that in figuring on the power transmitting strength of shafting two factors of equal force must be considered instead of one when transverse strain is alone being figured on. Doubling the speed of a shaft means doubling its ability to transmit power. The ability of a shaft to transmit power is increased or diminished with easy variation or change in speed and in proportion to the variation or change. The average 2-inch (1-15-16) shaft can be considered safe for transmitting 15 horse-power at a speed of 100 revolutions per minute. It will de more work, but we make it 15 horse-power for absolute safety.

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### Saw Guides and Guards on Band Mill

The guides through which the Saw runs should be of frictionless metal, such as babbitt metal, or something of this kind, but rest tightly against the saw when strained, but should have clearance enough to hold the Saw from running in or out of the cut, but not to bind it, as this would be the means of case-hardening or crystallizing the steel more quickly than by any other possible means.

The guard, or what is known as the back guide, for a Band Mill, should be used only as a safeguard against running the saw off the back of the wheel, but it never should be set up so that the saw will run against it. If in any way the saw may run back against the back guide and crystallize or case-harden, it is advisable to take an old piece of emery wheel, while the saw is in motion, and hold it tightly on the back of the saw for some minutes, turning it around to make the back of the blade perfectly round and true, and at the same time taking out the case-hardening or crystallation that may have been put in by running heavily on the back guide. This will be found to prevent cracks.

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### Home-made Power Lathe

While in a furniture factory some time ago my attention was called to a home-made lathe for turning up table pedestals. It was anordinary hand lathe, with a mandrel mounted on a frame anchored to the lathe bench, on which the cutterheads were set. Cutters were strung the entire length of the stick to be turned. The mandrel was set on a movable carriage arranged with a screw cross-feed for feeding up to the work. The mandrel was belted at both ends from a shaft directly ovehhead, so that the movement in travelling up to the work would not affect the length of the belts.

There are special machines for doing this work, which, of course, are the best, but this rig seemed to work very nicely, and might be justifiable where the quantity of work is not sufficient to warrant a more expensive machine.

In nearly every factory there is to be found some contrivance for doing some operation peculiar to their work, more or less ingeniously arranged. Many of them have exceptional merit and show good ideas and mechanical talent on the part of the originators.

# Business Management and It's Requirements

By "Nich"

Any fool can invest money, but it takes gumption to place it right, an abundance of grit for a balance, and a 2:40 gait to "git" there. There is no exception in any business undertaking.

Many, after inheriting a competence, look upon the rosy side of business life, and imagine that any investment in a steam outfit, with proper machinery, coupled with the engagement of a so-called experienced manager, will assure success from the beginning.

It certainly will if they aim to place their funds in a permanent and shrinking location, because they have overlooked the one essential feature, i.e., their own lack of experience in that particular line.

No matter what one goes into, if it is not our own best fitted "niche," we must eventually pay dearly for the whistle.

Any one can get a volume of trade if he sells a first-class article low enough, or for less than actual cost, which, in some lines, takes time to demonstrate.

An honest foreman may be making mistakes, before he or anyone else realizes it, which error, as this article will show later one, can produce a record of deficits for the inevitable end. The results of these mistakes he, as a foreman, can leave behind him, and may blame other plausible causes for their occasion; but the poor, deluded proprietor is tied down to the situation and must face the results as best he can, charging it all up to the debtor side of experience. Yet if he has patience and gains wisdom by past experiences, he may still reach a living income and avoid jumping farther into the maelstrom of disastrous business.

The present age gives experience a better valuation than was accorded it a decade ago. The young blood that rushes to the front with an impetuosity that only force and grit can produce, until jerked back by a condition not previously anticipated, may cause a condition requiring years of time and hard labor to overcome.

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To illustrate this from actual, hard-earned facts, that are in no way fanciful or exaggerated, I refer to a certain manufacturing establishment located somewhere within the limits of the United States.

A man of many years' experience in a heavy jobbing line, sought a new location with a friend, who, having the most experience, controlled things in his accustomed anticipating way, and, by such a multiplicity of detail, made everything appear remarkably favorable. The public quickly caught the spirit and felt that it was certainly a public benefaction for the community, and thought if so small a capital could present such a facorable outlook, more would bring its full share, and perhaps an excess.

The formation of a big company for that location was soon accomplished. The deed was quickly done, only to find in a few short years that the man of experience was, and had been, visionary; big orders at extremely low prices had been secured, and, with plenty of help to be seen, it looked like true business, while the real condition could only be told after the year's round-up. Just at this point he proved dishonest. Having little at stake and a good salary to cling to, he added an imaginary increase to his inventorial stock, and said nothing, allowing the business to drift along to the inevitable—a sad crash that only the stockholders could remedy by doubling up.

They were game, however, and, after a careful trial, concluded that by due caution the past might be redeemed by a different and tried foreman, whose honesty was unquestioned. Under this change things improved fairly well, bringing a profit some years, and in others not, with seemingly no good reason for any year's shortage.

The new foreman was a man of honor, a hard worker in his way, a handy man anywhere. He was always ready to make improvements that seemed to meet the situation, appearing to save labor and expense, but the returns did not meet the outlay. It did not satisfy; the long road must have a turning point.

At last there came conflicting currents in the atmosphere. Something must be done. We all know that in such crises some one gets hurt. Public benefit could not always continue. The train called "change" was on a move and could not be retarded until the long-suffering stockholders were satisfied and relieved of their responsibilities in this particular venture. They would only listen to a quick relief, which culminated in a heavy loss to all.

The last purchaser concluded to run the plant and simply relieve himself of the undesirable load. A few months' work on the unfinished stock presented some surprising things. It exemplified the failure of the former foreman's many so-called improvements. He had failed to keep close tab on the work of his men. While they seemed to be moving right, yet they failed to bring the production up to where it should be, causing a loss of time and material that aided in bringing the final unpleasant result. The business had to pay for labor he could have done, so that while appearing to be an invaluable necessity, he was really a detriment to the best interests of the business, although honesty was the keynote.

The new and last foreman was selected from the employees. He was simply a faithful and practical man, lacking any dashes of genius to glitter the eye. Business with him meant business in every way. He made himself a producer, yet kept close watch on his men. He "got there." No fooling for him or his men; no favorites to tickle. He was always ready, without fear or favor, to say just what he thought, regardless of others' likes or dislikes. If they felt hurt, they could go (and many did), which eventually aided in his securing just such men as he felt the business needed.

Thus the long-drawn problem was solved. The real cause of the failure of this business was the need of the right man.

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### Reducing Costs of Handling in Machine Shops

The first step towards economy in wood-working machine shops, as elsewhere, undoubtedly lies in securing a good practical man as manager or foreman. Such men as a rule have more experience of men, machines, timber and systems than the owners themselves. Not because they have more intelligence, but rather I should say they have more opportunities of

observing and studying the mechanical as well as the commercial side of the business.

There are plenty of such men about, who could make a paying proposition of almost any business connected with the timber trade, were they not so severely handicapped by having poor help—scrap machines—and tied down by too much red tape in the office. Good men are always worthy of their hire, more especially machine men, for not only is it the man's wages that have to be thought of; there is the power, the timber, and the firm's reputation always at stake. Get good men, and make it worth their while to stay. Same thing with machines; they should be the best that can be procured for the work you require them to do—not necessarily intricate and expensive. Oh, yes; I know very well that a good machine man can do good work on an old, worn-out machine (many are doing this daily), but that same man could do much more work on an up-to-date machine in much less time. Some owners may keep their mills for their employees to display their mechanical skill and ingenuity, others say they run their works on a commercial basis, yet they have a heap of worthless junk or scrap iron in place of machinery. No doubt the foreman has pointed the necessity of installing better machinery, which would do the work cheaper and better; but his employers will not be advised by their foreman, who they have placed there to look after their interests, with orders perhaps to cut down expenses wherever possible. It may be the want of money at times, but more often it is the lack of experience or shrewdness that keeps owners from replacing old machines by modern moneymakers. Many an under-powered factory of to-day could have ample power were they to instal new machines where necessary. It is very true the foreman can greatly help any firm to lose its capital or to increase it. The former he can do unaided; the latter must have the co-operation of the owner to a large extent. Of course, there are hundreds of ways to economize, but without good machines they avail but little. What is the use of having several large machines of the best make, fitted with good knives, etc., if you have not a good grinding machine to keep them in first-class order? You are simply restricting their output and losing many pounds by trying to save a few dollars. Same thing can be said of saws and belts, etc., etc. The practical experience of the foreman must be worthy of consideration if he is a good man, and alive to the interests of his firm; if not, he must be a nuisance, and should be replaced at once by someone who does know his work, and in whom you can have confidence. You must have a first-class man in charge of every department, and he must have the confidence of his employers, also those who have to work under him. He should have a certain amount of latitude, and not have his hands tied too tightly. Of course, there are black sheep in every fold, but when any firm gets a good man, he should not suffer for the misdeeds of his predecessors. Brains, intelligence, ingenuity, and mechanical genius are all valuable assets, and should be paid their full market value, and encouraged by confidence.

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A popular soprano is said to have a voice of fine timbre, a willowy figure, cherry lips, chestnut hair, and hazel eyes. She must have been raised in the lumber regions.—Lippincott's.

### Saye He Has Found Perpetual Motion

Kentucky Inventor Declares Engine Has Run Eight Months, and He Invites Inspection

Frankfort, Ky.—Investigation by a manufacturing company is being made of what is alleged to be a perpetual motion machine perfected by Noel Hodges, of Frankfort. Mr. Hodges asserts that the small model which he has at his home, in Holmes street, has been running eight months without any means of propulsion outside of the power the machine generates. He also says that the machine will produce power enough to run an electric fan or small dynamo, and he says he has refused an offer of $50,000 for his invention.

Hodges has been working on his invention for years without anybody knowing what he was doing, and he has just made public the claim that he has solved the problem of perpetual motion, which has driven so many men to the insane asylums during the hundreds of years that the inventors have been struggling with the task. Mr. Hodges says he will not sell for $50,000, although he is poor, for he knows that his invention is worth many times that amount.

The invention is a wheel with steel balls at the ends of rods on one side of the wheel, the weight of these being enough, Mr. Hodges hays, to drive the wheel around. He says he welcomes investigation of the invention, and would be glad to have anybody show him any flaw in it.

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### Injury to Lumber by Fungi

Blue and black stains on lumber stored in yards decrease the value of the lumber, however, injuring the wood, since it has been found that the fungi which cause the stains feed upon the materials within the cells of the sap-wood, and do not destroy the fibers. These fungi are largely of the black-knot family, and the most common are species of Graphium and Ceratostomella. It has been the custom of the lumber companies to dip the wood in solutions of sodium carbonate or bicarbonate immediately after the sawing; but the results have been very uneven. To find out why the alkaline solutions sometimes prevented the development of the fungi, and at other times had no effect whatever, Miss Caroline Rumbold started a series of experimental cultures at the Missouri Botanical Gardens in St. Louis.

Nutriment media were prepared containing from one-half to two per cent sodium carbonate, and others with similar amounts of citric acid. The spores of Ceratostomella germinated and the fungus thrived on the acid media, and on those containing 0.5 per cent. of $Na^2CO^3$, but not on those with 1 per cent. or more of the alkali. Freshly cut sap boards of yellow pine and red gum were then dipped in hot and in cold solutions of sodium carbonate of various strengths, from 1 per cent. to 10 per cent. These boards were inoculated with the spores of the fungus and kept in chambers with a saturater atmosphere. Controls were simply dipped in water, and some of the red gum boards also in sulphuric acid (5 per cent. and 10 per cent) . The fungus developed on all the controls, including the sulphuric acid boards, and on most of the boards dipped in the alkaline solutions. The hot water was found to be more effective in inhibiting the growth than the cold solution, and the carbonate of 7 to 8 per cent. as effective as bicarbonate solution of 8 to 10 per cent.

# Useful Information for the Wood Finisher

A. Ashmun Kelly

The best treatment for Southern pine where a natural finish is desired, is to give it one coat of white shellac and then treat it with two coats of good hard copal varnish.

To preserve the light color of white maple, allow no oil to touch it. Apply one or two coats of bleached shellac and finish with white copal varnish.

Beware of white copal, so-called, when it is very white or pale as it is apt to contain dammar, a very soft gum and not at all suitable for wood-finishing.

To remove analine stains from the hands, first wash with a little bleaching powder, then with alcohol, following this with washing with some good soap. Hand sapolio is good.

To cure a sticky varnished surface, mix together equal parts of japan drier and turpentine. Rub this well into the varnish with a stiff brush, or a coat or two of shellac will generally prove effective.

After rubbing with pumice stone and water, rub with rotten-stone and oil, to remove the scratches left by the pumice stone. But be sure to wash off every bit of pumice before rubbing with oil and rottenstone or there will be scratches still.

To make a good floor wax, take yellow beeswax two pounds, raw linseed oil one pint, and turpentine one quart. Melt the wax in the oil and add the turpentine afterwards. The mixture, when cool, should be like an ointment in consistency. Rub it into the wood with brush or rag and polish with a dry woolen cloth or stiff bristle brush with vigorous rubbing.

For a new floor, a very satisfactory result may be had by first applying a coat of raw linseed oil, very thin, and well rubbed into the wood; then in a half-hour's time apply a coat of shellac. On this a good coat of floor varnish may be applied or another coat of shellac, or the one coat will do.

For rather large cracks in the floor try a putty made from five parts of cottage cheese and one part of fresh lime which must be dry-slaked for use. Mix it to a paste. Coloring may be added, but only earth colors like ocher, umber and sieanna, will do as chemical colors will be affected by the lime.

Another good filler for very large floor cracks may be made by boiling newspapers to a pulp, then adding wheat flour paste.

For ordinary small cracks in the floor use a hardwood filler, adding any color to suit the finish of the floor. This will dry hard in a few minutes and will not shrink. Most of the floor crack fillers on the market are simply hardwood filled.

To remove ink spots from varnished hardwood try spirits of niter; when the spot turns white clean off with a dry cloth. It may be necessary to give it more than one application.

The addition of a little gum elemi will make a varnish stain more elastic. This gum sells at fifty cents per pound, retail.

To make a good imitation of ebony hardwood, give it two coats of analine black (nigrosene). Fill with a black paste filler. Sandpaper smooth, then apply a coat of ivory black ground in japan, thinned with turpentine. When dry, varnish and polish.

Paste fillers are for all woods having an open grain. These include ash, beech, butternut, black walnut, baywood, chestnut, elm, mahogany and rosewood.

Liquid fillers are used on all close-grained woods. The best liquid filler, especially for maple, birch, cherry and Circassian walnut, is shellac varnish. Shellac finished white pine is handsome. Hard pine should be shellacked also. In fact, shellac is the liquid filler when expense is not a factor. What is sold as liquid filler comes in various grades of quality but in any case is merely a substitute for the costlier shellac varnish.

What is called liquid filler is not a filler at all, strictly speaking, but a surfacer. It saturates the wood and prevents its absorption of the liquid from the varnish coat.

A very rich brown stain may be made for wood after the formula given by Dr. Stolzel, as follows: Boil one part of catechu (cutch or gambier) with 30 parts of water and a little soda. Apply this to the wood and let it dry. Make another solution of one part of bichromate of patash and 30 parts of water. Apply one coat of this solution. By a little difference in the mode of treatment, and by varying the strength of the solution, various shades of rich brown may be obtained by this formula. The stain is said to preserve the wood and is very permanent. It is easily done.

When it is desired to paint a floor that must be used all the time, color some brown shellac varnish with any earth color you may prefer, such ocher, umber, sienna, etc. Make the shellac and color very thin with alcohol, and apply a coat. In 30 minutes give it a second coat. Give it more than 30 minutes if possible, say one hour. Then apply a second coat and the job is ready to walk on in another hour.

By applying one coat in the evening, and another very early in the morning, a still better job may be done, but two coats in the evening will do very well.

Permanent colors in varnishes may be obtained by mixing alcholic solutions of the color bases, such as rosaniline, chrysodine, or induline, with the oil varnishes. With this addition the varnish will dry better also. Instead of alcohol a light hydrocarbon may be used as a solvent. The general practice is to dissolve the colors in benzole or to add them in powder to the raw varnish.

Varnish becomes porous after exposure to the air unless properly prepared and carefully applied. A varnished surface under the magnifying glass shows innumerable pits or depressions, in which microscopic organisms collect. These in time form centres of decay which eventually penetrate the coat and admit moisture. A coat of varnish thus penetrated is useless for protection.

To make a varnish that will stand boiling water, without the addition of Chinawood oil, take 750 parts of pure raw linseed oil, in which suspend a bag containing 150 parts of litharge and 92 parts of red lead. Boil until the oil becomes dark brown, then remove the bag, and substitute a bag containing some cloves of garlic. Renew the garlic several times during the boiling. In the meantime melt by heat 500 parts of powdered amber with 60 parts of raw linseed oil, raised to the boiling point, then stir it into the boiling oil. Boil for a few minutes further, then allow

the varnish to settle, subsequently decanting the clarified part and placing it in well stoppered cans.

There are many ways for making French polish. This is a very good one: To a gallon of alcohol add two pounds of orange shellac gum and four ounces of gum benzoin. Shake up the mixture at intervals until the solids are thoroughly dissolved.

Varnish stains usually have shellac for a base, the coloring being aniline dyes. To prevent the varnish stain becoming too brittle add a little gum elemi, not rosin which will make a sticky varnish and retard drying though it is used in many varnish stains on the market, being cheaper than elemi.

To make a good dammar varnish, as the store article is not always reliable, digest together by a gentle heat 3 pounds of gum dammar, 2 pounds of gum sandarac and ½ ounce of gum mastic in one gallon of turpentine. After the solids have dissolved, thin down with turpentine to a suitable consistency.

A fine walnut varnish stain may be made with 24 ounces of orange shellac, 1 ounce of Bismarck brown, and ½ ounce of nigrosine or black aniline. Dissolve the shellac in a gallon of alcohol, mix the anilines in a little alcohol, then add to and stir well the whole mixture.

Crystal varnish is simply a mixture of Canada balsam and turpentine in the proportions of 8 pounds of balsam to 1 gallon of turpentine.

To make a very cheap varnish, suitable for inexpensive work, heat together on a sand or water bath 1 gallon of turpentine and 3½ pounds of common resin. As soon as the resin has dissolved the varnish is ready for use. It is scarcely necessary to add that the varnish will not prove durable, nor stand scratches, but it will have a good gloss, will dry quick, and look good until the purposes of its use have been served; that is, until the goods are sold.

The best piano polish may be made after this formula: Haw linseed oil, 32 fluid ounces; alcohol, 8 fluid ounces; diluted acetic acid, 8 ounces; turpentine chloride, 2 fluid ounces.

Add first the antimony solution to the oil, then the acid and finally the chloride. Shake well after each addition.

What may be called wood putty, useful for repairing holes or cracks in wood, may be made with sawdust, preferably of the same kind of wood as that which is to be treated, though other sawdust will do if colored to suit. Put it in an earthen vessel and stir boiling water into it, stir it well, and let it stand for about 10 days. Boil the mass until it becomes pulpy. Place it in a coarse bag and press out all moisture possible. This is the stock and when required for use take some of it and make into a proper paste or putty condition by adding some glue size. Press this putty into the cracks or holes. When it has become hard, sandpaper it off smooth. When used properly it is difficult to tell where the puttied parts are.

A very hard filler for defects in wood can be made by melting one ounce of rosin and one ounce of yellow beeswax in an iron pan. When melted, stir in an ounce of any earth pigment you may desire, such as Venetian red, umber, etc., according to the color of the wood. As this putty becomes like stone for hardness when cold, it must be used while yet warm.

Still another filler may be made by dissolving one part of best cabinet glue in 16 parts of hot water. When cool stir in hardwood sawdust of the wood you are to fill and add a little whiting until like putty. Add any coloring necessary to match the wood.

Or make a putty with fresh slaked lime one part, rye flour two parts, and sufficient raw linseed oil to form a putty. Varnish instead of oil will make a harder putty. Color to suit the wood.

For some purposes this formula is best: Add together equal parts of red lead, white lead, litharge and whiting, all in the dry state, and mix into a putty with raw linseed oil.

The best finish for a table top, or other surface that is to have hard wear, is shellac. Apply several coats, rubbing down between coats and finishing with oil and pumice powder. Three coats of shellac will make a very fair job. This will make a harder surface than any copal varnish and will stand soap, etc. It is particularly good for school desks, writing desks, etc.

Copal varnish is less likely to crack on shellac than any coating known.

As a primer shellac sets too quickly and on large surfaces will show laps, particularly in warm weather. It will raise the grain of soft wood badly and, in a less degree, that of hardwoods. This involves much sandpapering and wears away the coating and consumes time, all costly items. Yet upon the whole it makes a better primer or surfacer than copal varnish.

Spirit stain will raise the grain of wood but this may be greatly remedied by adding a very little glycerine to the stain. Castor oil is even better. But be very careful to not get too much in of either; of the oil a tablespoonful to the quart of stain is about right. Allow the stain lots of time for drying before filling or varnishing. Where the wood is not to be filled or varnished, as with Flemish oak, more of the oil or glycerine may be used. If afraid to try this, then add say a tablespoonful of shellac to the pint of stain. Venice turpentine also will do.

To stain willow furniture, first mordaunt it with a wash made of chloride of lime 9 ounces, soda crystals 1 ounce, dissolved in 5 quarts of water. Apply this to the wood, using several coats of it, then give it a mash of a weak solution of sulphuric acid in water. Rince it immediately afterwards with clear water. This will cause the stain to take uniformly. The stain is best made from alcohol, as it will penetrate the willow better than oil or water stain. If water stain is used, apply it hot, to assist penetration. As it takes some experience in preparing the willow by mordaunting, which gives it the proper roughness or tooth for the stain, it is best for the beginner to try it on something else than the furniture at first.

A quick polish may be made by mixing sweet oil and alcohol, equal parts, and is used by dipping a wad of raw cotton in it and rubbing the varnished surface in a rotary manner.

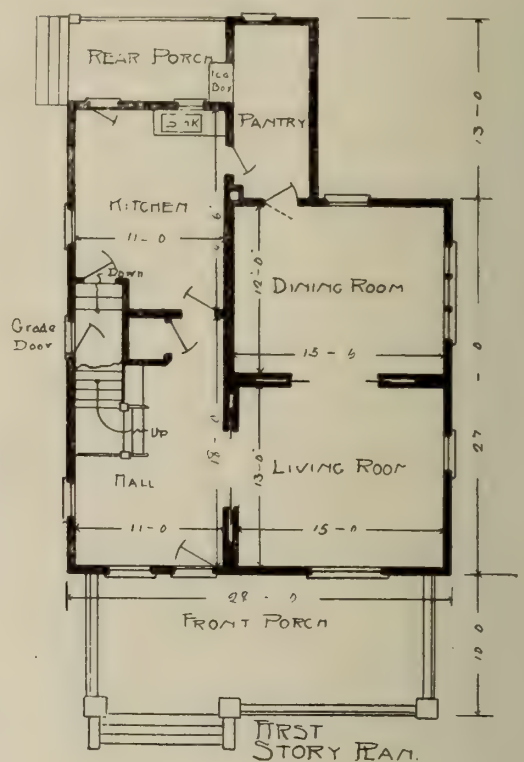
In French-polish work, overfilling causes a good deal of expense from sandpapering. When the plaster of Paris is applied care should be taken to remove all that remains above the surface. While any of the usual wood fillers may be used, practical French-polishers prefer plaster of Paris mixed with water and colored to suit the work.

Continued on page 30.

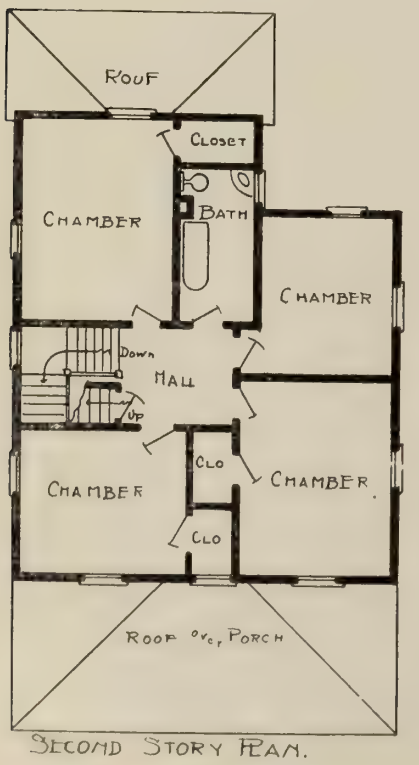
# A Medium Price Eight Room House

We show here for this month an eight-room house very conveniently arranged and planned so that the timbers will cut to an advantage without any waste. The living room is separated from the stair hall and dining room by sliding doors. The stairs to the second floor are easily accessible from the kitchen. The stairs to the cellar are under the main stairs with a grade door, a good sized pantry, with ice box, so that it can be filled from the back porch. The second floor has four bedrooms and bathroom, closets and an attic stairway. The main part of the building is sided and the gables rough cast plaster. This building, finished in Southern pine, ash, oak or any of the various hardwoods, hot air furnace and modern plumbing, can be built from about $3300 to $3700.

FRONT ELEVATION




FIRST STORY PLAN.




SECOND STORY PLAN.

RIGHT SIDE ELEVATION.

# Taking Care of Left Over Material

By a Contractor

Almost every carpenter that does a contracting business has left-overs from this job and that job. Some collect quite a valuable lot of material in this way and others accumulate a pile of junk. Some make money out of it and others find it burdensome. It depends a whole lot on the knack a man has for handling and taking care of this kind of stuff. There are probably some who can figure a job so closely that when they get through there will be practically nothing left but their tools. It is a good thing to have the ability to figure out exactly, yet it is not an indispensible qualification. It were better always to have some stuff left over here and there than to run short just in the wind up and have to send out and get it piece by piece, for you will waste more money than it costs to buy a bit liberally. It is like a woman buying goods for a dress. It is cheaper in the end to buy an extra yard than it is to spend an extra day trying to save a half yard.

What I started to talk about though was not so much how to figure and how to not figure so as to limit the left over material that you accumulate. For you will accumulate some no matter how you figure, because there is not only left overs, but there are times when changes and alterations are made. Times when you replace some work with new work and take in the old work, and one way and another you will accumulate these things, and what I want to get at and talk about is the idea of handling them to get good out of them instead of finding them burdensome and a sort of junk pile.

In the first place a man who does a contracting business should make it a point to have some place at home or at his shop to properly store and care for everything that is left over. The ideal plan, of course, is to have a shop and shed room for a little surplus lumber, because there are always things you want to do in bad weather and in the winter time when work is rather slack, one can put in a lot of good time to advantage in the shop working up stuff of one kind and another to use in the spring and to do odd jobs here and there of interior work or even exterior work. With a place to store these things the idea should be to treat every bit of left over, whether new or second hand stock, as something of value that has a chance to be improved. Sometimes you may get hold of a door that is an odd size or a door that is of unusual size. Keep it and take care of it. Some day you may find that it will both save and make you money by coming in handy. You may have a job calling for just such a size and again you may have a job where you can work in this size handily and use it in lieu of new work.

There are some dealers in sash and doors and building material that at times make it a point to dispose of certain odds and ends of stock to contractors and builders who can patch them up and use them. Odd size sash and doors and some doors that are open at the joints and need gluing and patching up, and occasionally one may while away some winter hours with good results by gathering up these things and getting them in shape for spring.

I want to talk especially though, about how to handle left-overs in standard lumber stock to the best advantage. I came across, the other day, a carpenter who had six or sevent hundred feet of flooring left over from three or four different jobs and he had another order in hand calling for about six hundred feet of flooring. Of course, the plan was to work this six hundred feet in on the new job and then he would have to buy only four hundred feet more. This would make easy money out of the job, since six hundred feet were already paid for and it would be like getting money from home to get full price for a job that he had only to buy about half of the material for. When he went to match up his flooring and use it, though, he found he was in trouble, because no two of those left-over lots of flooring would match up and work together. When they were put two together there would either be a difference in width, difference in the tongue and groove, or difference in the matching or something or other so that he couldn't have any two kinds matched together. The result was that he had a big job of assorting. He had piled all this stock into one pile.

When he brought in the left over from the second job he dumped it in with the first and so on and he had to get it sorted out by carefully measuring and testing each piece so as to get the left overs from each job grouped together. Then he could begin and lay with the left over from one job and follow it with the next and so on. Now, the proper idea with stock of this kind is to keep the material left over from each job separate until you find out that you have got some more that is exactly like it. If you have two lots of flooring left over, before you mix them into one pile make sure that they will match up together. If they will not, then keep them separate and when you go to use them use all of one lot and then follow it with the other lot and so on, so that the strips in each will match for width, etc. One may improve on this situation a little by forming a good connection with some local planing mill or some dealer who carries regularly a certain kind of flooring.

Then, almost always you can be pretty sure of what you have left over matching any previous left-overs you may have. There is quite a lot of trouble about the failure of flooring from one mill matching with that of another or the flooring out of one car matching with that out of another carload from the same mill, and the lumber papers are right now agitating this subject and recommending that the mill men get together and reform the flooring business and do a better job of matching, especially on pine flooring. Make a smaller tongue and a neater fitting joint and then make it all of exact pattern, both as to width, thickness, and matching, and have positive gauges to test by so that when one buys a lot of flooring this week and another lot next week it will all work together as if it was manufactured at the same time by the same machine.

If the mill men ever work it up to that point, it will simplify the matter wonderfully for the carpenter, who can then take his left overs of flooring and pile them in one pile until he has accumulated enough to use on one job. Meantime, the thing to do is to keep the stock from each job separate and plan to use it in that way, and when you get enough of left over lots to make a floor, then you can use it all by keeping each lot separate in laying. It seems that there is not as much trouble about ceiling as there is about flooring, but it is well with any left over stock, floor-

ing, ceiling, siding, casing, base, or any of the standard patterns to examine for uniformity in dimensions before mixing the left-over from some new job into that which you have on hand, and theu you will avoid sorting and mis-mating work.

To some it is an interesting work. This matter of caring for the left overs and working them in here and there on different jobs, and the man who takes to it kindly and has the proper knack gets excellent results out of it and finds that since these left-overs have already been accounted for in the original job that they help add to his profit account by swelling the supply for some other job. The way to make profit out of left-overs, however, is to regard them as stuff worth caring for and worth thinking about and not simply taking them as junk, because so long as you treat these things as junk, junk they will be and they will only bring junk prices.

### Excellent Condition in the Building Trade

There is great activity in the building trades in nearly all the principal cities and towns of the Dominion. The cessation of a general strike in the building trades at Vancouver, B. C., caused a revival in the building trades during the last week of the month. The only localities where conditions were dull among builders were: Halifax, N. S., Newcastle, N. B., Port Arthur, Ont., and Fort William.

The building permits during the first six months of 1911 in Canada, amounted to the value of $64,746,811, compared with $49,583,399 in the corresponding period of 1910. The highest percentage of increase over the corresponding period of 1910 was at Prince Albert, Sask., with an increase of 582.7 per cent. Guelph came second, Windsor third, and Calgary fourth. Reckoning the amount of building per capita in the principal cities, Calgary ranked first with $164.25, followed by Saskatoon with $160.96, and Regina with $154.57.

### First Cost vs. Output of Wood Working Machinery

In continuously operated woodworking machines, like planers and matchers, relative efficiencies can be readily determined. It is easy to find out whether the higher grading of the stock and the increased output secured with the higher priced machine warrant its purchase. Seldom can there be any question as to the wisdom of buying the higher priced machine if the output is carefully considered. Suppose that the choice lies between two extremes, so great that the higher price is double the lower; allow as much as 25 per cent. per year to cover interest, depreciation, insurance and taxes. Then the higher priced machine would have to show an increase of 25 per cent. in the value of the output, measured both by quality and quantity. If the former is improved 10 per cent. on the average then the latter would only have to be increased about 15 per capita. But in another way, to come out even on the investment, the increased value of the product per day would only have to be less than one-tenth of one per cent. of the difference in cost between the two machines. Everything above this amount would represent clear gain on the investment if the expense of repairs is neglected. But this will unquestionably be greater with the cheaper machine.

### Cost of Building Cheops

It has been estimated that to rebuild the pyramid of Cheops under modern conditions an expenditure of $100,000,000 would be necessary and the labor of 40,000 men for two years required.

It has been calculated that the work really required the services of 100,000 men for thirty years.

The pyramid occupies a space of twelve and three-quarter acres and is seven hundred and forty-six feet high and contains about 143,315,000 cubic yards of stone and granite. The material alone represents an item of $36,000,000, while the labor would increase this amount by $72,000,000. To this must be added $3,000,000 for tools, transportation, and similar items.

The pyramid is built on a solid rock one hundred and fifty feet deep, and to build a foundation of this character would add to the cost to the extent of making the total of $100,000,000.

### The Total Immigration to Canada

The total immigration to Canada for the months of April, May and June, 1911, amounted to 153,120, compared with 130,353 in the corresponding months of 1910, making an increase of 22,767, or seventeen per cent. Of the total arrivals for the three months, 109,318 were at ocean ports, as against 84,853 during the corresponding months of last year, an increase of 30 per cent. The number of arrivals from the United States during the three months was 43,802, compared with 45,500 in 1910, a decrease of 3.7 per cent.

### Brazing Castings

An extensive addition to his plant, just completed by W. H. Dunne, of 1492 West Queen street, Toronto, enables him to braze together broken machinery parts of all and any description, and in a manner absolutely clean and perfect.

The new Dunne method is wonderfully rapid. Castings received in the morning are brazed and returned the same day.

### Wears Out Sooner
### United States Workman Does Not Last as Long as British

The British Consul-General at New York, Mr. C. W. Bennett, in a report to the London Board of Trade, compared American and European labor, and the conclusion he came to is that the American worker puts more energy into his work than the European laborer in his own country, but that at between forty and fifty years of age, when the European workman is at his best, the American frequently breaks down. Physical exhaustion, dyspepsia, or nervous prostration follows, and then the man's life as a worker is done.

### Practical Applied Electricity

By David Penn Morton, B.S.E.E.

This book is one of the best electrical manuals that has been brought out for some time. It is written in good plain English and would be an ideal book for the practical man. It would be of great advantage to the student also, as it deals with the rudiments of electricity.

The chapter on how to deal with a case of electric shock, and another, causes of trouble with electrical machinery and the remedies suited for these causes are good.

Published by Reilly and Britton, Chicago, Ill.

# The Furniture Man and His Lumber

The Furniture Man was frowning, sweating and fretting. It looked like a bad combination for hot weather, especially had for the purpose of getting a pleasant chat about his requirements in lumber, but in this instance, as in the case with the weather sometimes, the signs were all wrong, for it happened that he was just exactly primed for a talk on lumber.

"What frets my soul," he said, after mopping his brow and fanning for a moment, "is not only that I have lumber sometimes which will not work out the way it looks like it ought to, but that it also shows either a careless disregard on the part of the lumberman, or a woeful ignorance of how lumber ought to be taken care of. I have just been out with the stock sawyer wrestling among some lumber piles and I have unearthed several things that have made me fret and sweat.

"The first thing that worried me was a lot of squares that are warped and twisted. Some of them are warped so badly that it will be impossible to use them except in smaller dimensions, others are so crooked that they will have to be reduced in size the same as the warped ones, and in their present condition they should really be classed as culls. Yet to cull them would make the lumberman howl and vow that I am a robber.

"Come out here," he continued. "I want to show you."

Leading the way out into the factory he showed where there was one pile of squares going through the sticker, another pile that had been put on a truck to be reworked at the top smoother or jointer.

"Here is a point," he said, "that I want to get before the millmen. When a stick is twisted or crooked it not only makes it necessary to reduce it to smaller dimension to take the crooks out, but it has to be done in a tedious, expensive manner. Some of the short crooks and kinks or slight curves we can take out with sticker by careful work, and if the stock is full size it does not bother so much, but when it gets beyond a certain percentage of crooks or kinks either, the sticker will not eliminate them. Then we have to take that stuff to a top smoother, straighen and square two edges, after which we can run it through a sticker or one of the small planers and reduce it to smaller dimensions and get a straight piece.

"Now I understand, before you say it, that a part of this is unavoidable. Some timber has a twist in the grain and no matter how carefully piled will twist in the process of drying. That is true, but where a man has timber of that kind he should fight shy of putting it into squares. It would be preferable to cut it into boards and pile it so carefully that it will be held straight while it is drying out.

"Not only that, but some of this warping and crooking, or we might say, some of the twisting and all of the crooking, can be prevented by proper care in piling, and by piling at the proper time.

"If the millman producing this dimension stock you see here had taken it fresh and green, as soon as it came from the saw, and made rigid straight foundations with cross strips not only at the ends, but at the centres of these short strips, piled them carefully, then weighted them down with some old timbers or something on top, there would hardly have been a single piece of it which would have had to be thrown out, or run over the top smoother and reduced to smaller sizes to straighten it.

"Nor is it merely the squares and dimension stock. If you will come out here I will show you at the lumber pile some of the same kind of carelessness. Here is lumber that has suffered for the want of enough piling sticks, has bagged up and down between the sticks, warped and twisted in drying around knots, and here and there you see a board, the end of which has extended through the back of a pile two or three feet and it has sagged down and dried crooked.

"Now the only thing we can do with boards with these baggy places and crooks and warps in them is to cut them up in short pieces and small dimensions. Fortunately that's what we do with most of our lumber, but even then there remain some aggravating crooks and warps that should not be there. The lumber would be worth enough more to us that we might well afford to pay for the trouble of the man who cut it—no matter whether it is low grade or high grade—would he put cross strips through it every 12 to 18 inches, and pile it up so carefully that when it had dried out thoroughly, it would be as straight as a piece of cardboard. Then we would have lumber that would be a pleasure to handle and work and would be worth much more to us."

While waiting for the force of this to soak in, the Furniture Man looked around for a while; and then led the way back to the mill to the stock sawyer's bench, where he picked up a lot of odds and ends cut from lumber. Holding up one of the pieces, he said: "Now, here's another thing that points to the same neglect and carelessness which results in stock warping and twisting. Here is lumber with sap on it, and the sap is stained until it cannot be used anywhere that the stain will not show on the face of a piece of furniture.

"If we could get this sappy oak clear it would be almost as valuable as the heart-wood. There are some decorative schemes in which sap really shows up better than the heart; has a brighter appearance, and it is a better base on which to use some forms of stain.

"Now, if the millmen take pains with their stock—piling it immediately when it comes from the saw, and piling it so carefully that it would neither sap stain nor warp—all the sappy lumber would be available for clear faces just the same as the heart lumber. It would take a little assorting and selecting, as sap-wood and heart-wood mixed together do not make a very good combination unless a sort of harmonious blend can be secured, but clear sap by right is and ought to be regarded practically as valuable as clear heart in the furniture trade. It is not good for many other purposes, especially for outside work where durability is important, but for use in furniture work it is the face appearance that counts.

"Now don't misunderstand me as simply getting my hammer out and knocking the lumber people, because that is not the point I am driving at in all of this talk. I am simply offering what I think is good advice. It is more to them than it is to us. For lumber we get, we simply pay the price which it is worth to us, and if lumbermen took more pains in the manufacture, seasoning and care of their lumber they would get more out of it. They would receive more money, and we would get more satisfaction out of

working it. You can just take the tip from me, that the men who catch this idea right and make proper use of it, will soon capture the bulk of the discriminating furniture trade.

**The Uses and Supply of Hickory**

There is no hardwood the passing of whose commercial supply would so seriously affect certain important manufacturing interests as hickory. It is distinctively a North American tree, one of the very oldest hardwoods known, and no acceptable substitute for it in many of the particular uses to which it is put can be found anywhere in the world. While it belongs to the same family as the walnuts, and botanists have been able to distinguish as many as fifteen species of it, including not less than four species of the pecan hickories, the true hickories—those whose nuts are generally hard-shelled and thick-husked, whose bark is generally scaly, whose leaves have from three to nine leaflets, and whose wood is strong, hard and tough—constitute only a comparatively small part of the country's commercial hardwood lumber supply.

Originally the true hickory of commerce once grew in commercial quantities from Connecticut, New York and southern Michigan south of Florida and west to Illinois, Missouri, Oklahoma and eastern Texas, in the scattered way through the forests peculiar to it. In this region it probably represented at one time one-fortieth of the total hardwood stand; but the original supply is now approaching exhaustion. East of the Potomac it has disappeared almost entirely. West of the Alleghanies and north of the Ohio only a few scattered remnants are left, and the bulk of the supply now lies south of the Ohio river. Those who have traveled hickory-producing territory to any extent during recent years report that buyers of the wood are almost omnipresent, and already some of the larger companies are working over their old cuttings, taking material which had been rejected ten or fifteen years ago. "In only a few years," says a Forest Service bulletin, "probably not more than ten, the conditions of to-day in southern Indiana and Ohio will be duplicated in the South. The large timber will be scattered and hard to get and the second growth will become the main source of supply."

The end of the hickory supply has been hastened from the very beginning of its exploitation by several things which peculiarly distinguish the hickory-taking business. Among these may be mentioned the fact that the hickory is a very slow growing tree, and, consequently, the replenishing of its supply under natural conditions affords little or no hope to its users; but of greater still in this connection is the circumstance that the wood is so superior to everything else for many purposes, and so nearly impossible to replacement therefor, that demand for it persists, and grows in volume, regardless of such deterrents as advancing prices and increasing difficulties in getting at the remaining stand.

This is the more remarkable when we consider that the wood is not above commonplace in beauty of color or grain; that it shrinks badly in drying; is not durable in contact with the ground, and is very liable to attack by insects. Its sole claim of merit, in truth, is that it is heavy, hard, strong, stiff and very tough. These qualities make it almost indispensible for the manufacture of the American type of the spring vehicle, with its superior ligntness and strength, and for the production of the hickory handle, which has helped greatly to make the American axe known all over the world. There is no hub, spoke, rim or shaft that is comparable with the one from hickory.

The vehicle industry is the most dependent of any of our branches of manufacture upon hickory, and takes about 65 per cent. of the total cut. In this country spokes, rims, poles, shafts, singletrees, doubletrees, spring bars and axle caps of spring vehibles are all made of hickory; and more than half of this general line of implements stock is used for spokes. Other uses of the wood, as indicated in Forest Service Bulletin 80, include 1 per cent. of the annual cut in connection with the manufacture of automobile spokes and wheel rims; 9 per cent. of the total output in the manufacture of heavy wagons, and parts connected therewith, including neck-yokes, single and doubletrees, brake bars, and crossbars; 80,000 cords, or 10 per cent. of the total cut, in the production of axe, pick, sledge, hatchet, and other handles requiring toughness and strength; 8 per cent. in the agricultural implement business; 2 per cent. for the sucker rods or oil wells, wooden rods being much superior to iron sucker rods, although the latter largely predominate, on account of their cheapness; and 5 per cent. of the total cut for many special products, such as picker sticks in cotton and silk mills, skewers, golf sticks, whipstocks, ladder rungs, dowel pins, belaying pins, wooden screws, rustic furniture, hames, gymnastic bars, scyths snaths and quoins. Besides, hickory is the best American wood fuel used, and is probably burned to the extent of 1 million cords annually. Furthermore, hickory saplings maks the best obtainable wooden hoops for barrels and other containers, but, inasmuch as such hoops have to be made by hand, they are, most fortunately, almost altogether displaced by the patent eld hoop and by iron and wire bindings.

In view of these uses for which the wood is almost indispensible, the cut of hickory is very large in relation to the supply. While no accurate figures seem to be obtainable touching the production of primary hickory products, the census returns for 1908, whose completeness may be well doubted, showed a cut of about 200 million board feet. The figures, though, include only the material actually cut and sold as lumber. Probably nearly or quite as much hickory was produced in other forms in that same year, as the statistics indicate an additional cut equivalent to about 135 million board feet in the shape of spoke billets, handle blanks, and rim strips. In other words, a total production for commercial purposes of 335 million feet was shown for that year, allowing for all necessary waste, but not including hickork for fuel purposes. Statisticians estimate that if account be taken of the amount cut and used as fuel, and of the waste, the total quantity consumed or destroyed in one way or another, amounted to probably 450 million feet for the year 1908.

And this very likely, is not greatly wide of the mark, seeing that the preliminary report of the census for 1909 shows a cut of 338 million feet for hickory lumber, a very substantial increase in the productions of that article.

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**Scalded to Death**

Saskatoon.—Stanley Mowry, formerly of Toronto, was scalded to death in a boiler explosion at the Saskatchewan Lumber Mills here yesterday.

# Pernicious Publicity

Reprinted from Hardwood Record, Chicago, August 25, 1911

No line of commercial pursuit during the past few years has had so much damaging publicity devoted to it as the lumber industry. A large proportion of this undesirable exploitation has come about, not through malice, but from misinformation on the part of the daily press. The total result of this apparent campaign of antagonism to the fourth greatest industry of the United States has been to prejudice the public, not only against the legitimacy of the lumber business, but to attempt to demonstrate that it is in the control of a trust, and that he prevailing prices a which lumber is sold are unjustly high.

The Forest Service, with the best intentions, and with the idea of awakening public sentiment on the subject of the country's fast diminishing forests, for several years past has issued warnings of approaching timber denudation, and beyond this, has promulgated alleged timber statistics, showing that within a comparatively few years, under prevailing conditions of lumber production, there would be no forests remaining in this country.

It is a noteworthy, and sometimes quoted fact, that there are three kinds of lies: "lies, damn lies, and government statistics." These warnings" have surely had their effect; they have awakened the public to the possible danger of forest denudation; but further than this, they have aroused wood-users to almost a panic concerning their future supply of materials wherewith to carry on their various lines of manufacture.

For several years, owing to this scare, many who were formerly perfectly satisfied with their sources of supply, and with the character of their lumber purchases, have been lying awake nights figuring out substitutes of which they might avail themselves, to take the place of wood. In many instances they have discovered that concrete, steel, aluminum, plaster products, asphaltum, slate, stone and many other articles might be substituted; and further, contemplating that they did not want to be caught at the finish of wood extinction, have taken time by the forelock and have commenced to use these substitute materials.

This experimentation, in some cases has proven wise; while in many others distinctly unwise and extravagant. But the result of the scare has militated seriously against legitimate and logical lumber consumption for many varieties of wood.

The lumber trade cares little about foolish cartoons in the yellow journals and many of the yellower magazines, depicting lumbermen as trust magnates, and robbers of the "poor farmer" on the price of barn boards, but it has come to a point where it is eminently desirable that a host of newspaper editors should be better informed on lumber affairs, and that others should be "called" on the mischievous literature to which space is given in their columns. Unfortunately, this statement does not apply solely to the daily newspaper and magazine press, but is quite as true of many trade and commercial publications, whose editors surely ought to be better informed on the subject.

Citation: A recent issue of that sterling publication, the Literary Digest, the sanity of whose text can usually be entirely depended upon, gives space to the following paragraph, under the heading of "Scarcity of Wood for Wheels," quoted from the Cycle and Automobile Trade Journal.

"At the annual convention recently held in Detroit of the National Rim Manufacturers' Association, attention was called to the rapidly growing scarcity of oak and hickory for wheels. The consensus of opinion was that at the present rate of cutting, the supply would be exhausted in two or three seasons, when the wood will become too scarce for general use.

This is exactly what happened in Europe some time time ago, and we may, in a few years, be using wire wheels, as is the case abroad."

There may or may not have been a meeting of the National Rim Manufacturers' Association at Detroit, and at that meeting attention may or may not have been called to a rapidly growing scarcity of oak and hickory for wheels. Beyond question, if there was a meeting of this association held in Detroit or anywhere else, and if the question of wood supply came under discussion, there certainly is absolutely no truth in the statement that the consensus of opinion was that at the present rate of cutting, the supply would be exhausted in two or three seasons, when the wood will become too scarce for general use. Anyone at all familiar with the oak and hickory situation knows definitely that there will be a sufficient quantity of merchantable oak produced in the United States for the next century, to supply at a reasonable price, the total demand made by manufacturers of wheels for automobiles. It is more manifestly true that hickory stumpage will not be extinct for a period of equal length; and, furthermore, that hickory is in such ample supply at the present time that only the best cuts of the choicest varieties are utilized. In the opinion of the most competent hickory producers and users, not more than ten per cent. of hickory felled in the forest goes into eventual utilization for spokes, handles and other purposes.

This is the kind of unverified pabulum with which the press is loaded down at the present time, and it is the very kind that exercises a most damaging influence on the lumber industry. As a matter of fact, rather a scarcity of wagon wood-stock material, the supply is in such an excess over the demand that a manufacturer of this material who would claim to be doing business on a materially profitable basis today would be laughed at. Every lumberman at all familiar with this line regards it as one of the most unsatisfactory and non-profitable features of the trade, and this result obtains from the very reason of an excess of material suitable for the purpose, and from the consequent low price.

A year and a half ago, with the excessive demand by automobile body workers for poplar panel stock, a shortage was occasioned in this material that resulted in a considerable advance in price over that which had prevailed in the past. The hue and cry went forth that poplar was about to be exhausted, and "wise" automobile body makers immediately undertook to provide a substitute. They experimented with many other kinds of wood, but none were found equal to poplar, and then took up various types of

metal bodies as a possible substitute. Both experiments have proven unsatisfactory in result. In the meantime, the demand for wide, clear poplar lumber suitable for automobile bodies languished, and during the last eighteen months there has been a considerable accumulation of this variety and grade of wood. Quite a number of poplar manufacturers, in their belief that the automomile body makers' change from wood to metal for body making was permanent, have been very anxious to market their product, with the result that the price has temporarily fallen thirty to fifty dollars a thousand.

Right now, after a year of employing metal bodies, automobile makers are having all kinds of trouble with them, and are fast returning to this sterling wood. In the meantime, the scare of "poplar extinction" has cost the lumber manufacturers a very handsome sum of money, and the automobile makers have been subjected to a costly and unsatisfactory experiment. Poplar is now surely coming back to its own for automobile body making, because every buyer of a metal-bodied machine will never consent to the purchase of another. The question of whether poplar body stock costs $100 or $150 a thousand does not make a difference of five dollars on a car, and this difference in price cuts little figure with the ultimate purchaser, who insists on having the body of his automobile made with some material that will hold paint, and not be knocked full of dents and abrasions from slight contact.

The press has also been very enthusiastic in its commendations of steel and reinforced concrete construction in place of wood. It is a fact well known by competent insurance people, that the modern slow-burning wood construction offers far more protection to the contents of a building, and the building is much safer from destruction by fire than a steel frame, alleged fireproof building. As one of hundreds of illustrations, readers may be referred to the destruction last year of the big solid concrete and steel planing mill of the Great Southern Lumber Company, at Bogalusa, La. It was a total loss. A steel, or steel and concrete building is safe from destruction as a result of fire if its contents are not inflammable; otherwise, even an ordinary fire will damage it beyond repair, while it takes an extraordinary conflagration to materially injure slow-burning, wood construction. Steel and concrete as structural materials for certain types of buildings are undeniably the very best. On the other hand, wood construction of buildings for certain other purposes is infinitely better, safer, and cheaper.

Thousands of other citations might be enumerated, illustrating the point at issue, and it would almost look as though there were an organized effort on the part of the press to injure and discredit the lumber business.

Hardwood Record contends that there are many cases of substitution of other materials for wood that have proven eminently desirable, but in contradiction there have been a thousand attempts to substitute other materials for wood that have proven either disastrous failures, or those selected have not been nearly so desirable as the lumber formerly employed.

It is yet to be demonstrated that the upper work of the steel Pullman passenger or mail car is a safer vehicle for the transportation of passengers than the steel car with wood finish. Their cost is much in excess of the former type of railroad coaches and the reverberations from a steel railroad carriage do not contribute to the pleasure or comfort of the critical traveler. It is yet to be demonstrated that all steel freight car construction is an economical and sane movement. Every time a steel freight car is wrecked it goes to the scrap heap, and it is a pretty seriously smashed-up wooden gondola that is not susceptible of repairs. Scores of other examples of wood substitution of questionable efficiency and economy could be recited, but the citations made are sufficient to prove that the volume of timber supply in this country has been untruthfully deprecated; and that many of the attempts at wood substitution have proven foolish extravagancies.

## Useful Information for the Wood Finisher

Continued from page 23.

An odd and not displeasing effect may be made by giving wood a blue stain, then when dry a coat of gamboge stain, next apply a thin coating of white lead, rubbed out, then shellac, and lastly a wax finish.

When muriatic acid of any ingredient of a furniture polish gives forth an unpleasant odor, as will occur, it is well to add some oil of myrbane, the synthetic oil of bitter almonds. Camphor also is good for the purpose. Synthetic oil of wintergreen is another good smell disguiser, as is also synthetic oil of thyme.

The simplest way to make a mahogany stain is to boil two ounces of Bismarck brown in a gallon of water until all the brown is dissolved. Use the soluble brown. When the stain has become cool you may stain it, but before using it, or rather when ready to use it, warm it, and add a half-pint of ammonia and a quarter-pint of turpentine.

To get a silver gray stain on maple, pour some strong cider vinegar on some iron filings and alum. Coat the wood with this solution until the desired shade of color is had. You can use gallnuts in place of filings if more convenient. The gallnuts must be coarsely powdered.

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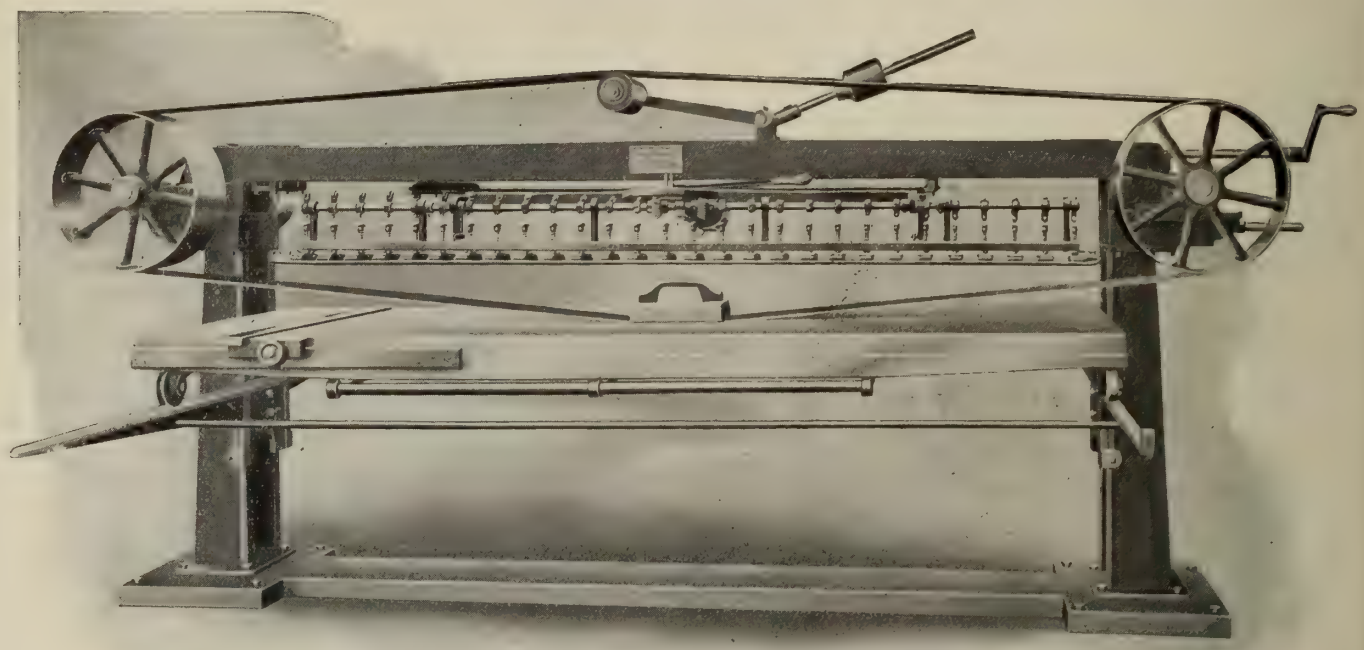

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# From Coast to Coast

### 25 Saw-Mills Shut Down—8,000 Idle

Beaumont, Texas.—Twenty-four saw mills have closed down owing to trouble between the employers and the unions. There are eight thousand idle.

### A New Industry

Niagara Falls, Ont.—E. E. Hill and E. M. Prestion of Toronto are in the city to-day negotiating for a location for the plant of Gaso-Electric Motors, a new motor car company, here. The city council will consider granting concessions to this million dollor corporation.

Albert Adams, an employee of the Woodstock Lumber Company, is lying at Woodstock Hospital in a critical condition as a result of injuries received while at work in the factory. The young man was operating one of the machines when the end of the board he was cutting flew up and struck him in the stomach. He was rendered unconscious, and at the hospital was operated upon. The doctors say he received sereral internal injuries and the prospects for his recovery are slight.

### Fall of Lumber Fatal

While working at the Rosedale sawmills, a pile of lumber fell onto Jos. Pitro, 170 Sumach street, fracturing his skull. He was removed to the General Hospital in an unconscious condition and died a few hours later.

### How Canada Uses Up the Lumber Supply

Ottawa.—Statistics of the lumber used during the past year have been received from 162 companies, consisting of the agricultural implement and vehicle manufacturers of Canada in six provinces, by the Forestry Branch of the Department of the Interior. 76,474,000 feet of lumber were used worth $2,513,265, or an averoge cost of $32.86 per thousand. Ontario used nearly 90 per cent. of the total for the Dominion; Quebec purchased 6 per cent., Manitoba 4 per cent., and Nova Scotia, New Brunswick and Prince Edward Island used very small amounts. Woods used in these industries require strength and durability, which is shown by the large amount of maple, elm, oak, ash, birch, and hickory that were used.

Of the native woods, cherry was the most expensive at $104 per thousand, and iron wood the cheapest at $15 per thousand. Mahogany at $120 per thousand was the most expensive of imported woods. The species of woods having the technical qualities required by these industries at present grow only in small quantities in the agricultural and farming districts of Canada. For this reason the supply is rapidly becoming diminished, so that unless steps are taken to reforest or conserve the production, we must depend more and more for our supply on the United States. It is pointed out that the fact that the woods necessary for the proper building of agricultural implements cannot be secured in any quantity in Canada tends to increase the cost of manufacturing in Canada.

### Lumber Going Into Porcupine

Cobalt, Ont.—The rebuilding of the burned area at Porcupine will require more than 1,500,000 feet of lumber to supply the present demand. Of this 350,000 feet has so far been sent into the gold camp.

The amount of lumber required would mean over 175 car loads, while up to date but fifty car loads have been sent into the camp. The Temiskaming Northern Ontario Railway has averaged about ten cars of lumber per day since the week after the fire.

### Lumber Business Ownership Changes

Sarnia, Ont.—For some time past negotiations have been under way between the Laidlaw Lumber Company and the firm of W. F. Lawrence & Sons for the purchase of the planing mill and lumber business of the latter company. The final transactions in the deal were completed yesterday, and the Laidlaw Lumber Company took immediate possession of the property. The extensive business formerly carried on by W. F. Lawrence & Sons will be further increased by the new proprietors. It is their intention to construct a new wharf for the better handling of the lumber product, and also to add new machinery to the mill plant with a view to extensively increasing its output. All the old employees of the Lawrence firm have been engaged by the new proprietors, and their number will be added to by the engaging additional men.

George H. Belton, of the Laidlaw Lumber Company, was here yesterday closing up the deal whereby the Lawrence property comes into the hands of the above company. Chester H. Belton, of this town, will have charge and manage the company's interests in Sarnia.

Lumbering statistics compiled by the forestry branch show that nearly ,5000,000,000 feet of lumber were cut all over Canada last year, worth 7,500,000. Ontario leads all the other provinces.

### Millions of Feet of Logs Afloat in Lake Huron

Harbor Beach.—Tugs Reid, Sarnia City, and Fisher, of Port Huron, towing a raft of 6,000,000 feet of logs from Georgian Bay, encountered heavy weather when approaching here last night, and the raft was torn from them and the logs scattered along the beach here for several miles. The tugs put in here for shelter.

This morning the tug Diver arrived from Port Huron and together the four tugs will start to work as soon as the seas go down, to pick up the logs.

### Lumber Factory Was Destroyed

Coboconk.—This morning, at about one o'clock the villagers were awakened by the fitful sound of the fire whistles, to find their chief industry being consumed by fire. The Gull River Lumber Company's planing factory was in flames, and beyond hope of being saved when the first help arrived.

The factory was separated from the saw mill and shingle mill by the railway siding, only, but the wind being favorable, the Company's fire engine giving good service, and a splendid bucket brigade made it possible to confine the fire to the building where it originated.

The loss in building, machinery and dressed lumber will likely be between four and five thousand dol-

lars, partly covered by insurance. One G. T. R. car was partly burned.

The origin of the fire is unknown. The Company will likely rebuild at once.

### Five Thousand in Labor Day Parade in Toronto

Five thousand five hundred labor men took part in the long trek from the Parliament Buildings to the Exhibition grounds in the holiday parade. Seventy unions were represented, and music was furnished by twelve bands. The streets all along the route were crowded with interested spectators. And, taken all in all, the parade amply justified the decision of the labor unions to revive the feature, which has been neglected since 1909.

Mayor Geary and other members of the City Council headed the parade. The most picturesque feature was the number of really beautiful floats. At the Exhibition grounds luncheon was served, and the afternoon was spent in the Labor Day sports.

### Disastrous Fire in Sidney

On Saturday night about 10 o'clock a disastrous fire occurred in the Township of Sidney, when the cheese box factory owned and operated by Mr. Stanley Vandervoort was totally destroyed. The building was of frame and burned rapidly. At the time of the fire there was considerable material in the factory which was burned. How the fire originated is not known. The loss, which will amount to a considerable sum, is partially covered by insurance.

### Sash and Door Firm Make an Assignment

In the matter of Doak Manufacturing Company:

Notice is hereby given that Johnstone & Doak, of Saskatchewan, carrying on business as manufacturing of sash, doors, etc., under the name of Doak Manufacturing Company, has on the eighteenth day of August made an assignment of all the estate, audits and effects to Jno. H. Anderson, of the city of Saskatoon, in the Province of Saskatchewan, official assignee, for the general benefit of his creditors. A meeting of the creditors will be held at the office of the official assignee, Room No. 7, Masonic Temple, on Wednesday, at three o'clock in the afternoon, to receive a statement of affairs.

### Have Swamped Lumber Market

Vancouver, B. C. — A sensation was caused recently at a joint session of coast and mountain sawmill men of British Columbia when it was alleged that American competitors have taken advantage of the absence of duty on rough lumber to sell thousands of carloads of dressed lumber in the prairie markets without paying duty, as requered by the Canadian Customs tariff.

Customs officers, it was alleged, overlook proper classification of imported dressed lumber, and continue to wink at devious methods declared to be in vogue. A strong protest will be sent to Ottawa.

The meeting devoted nearly all day to a consideration of the situation created by the competition of Puget Sound and Idaho rivals in Western Canada. The depression in the lumber trade south of the international boundary has resulted in an invasion of the markets of the Prairie provinces and British Columbia at prices estimated to be lower than actual manufacturing costs. A strong committee entrusted with a task of devising ways and means to meet the extraordinary conditions which now prevail was appointed.

It will report to a special meeting to be held next month.

### Yellow Pine Cut is Big

Some Important changes in Canada's Timber Cut Noted by Official Report

Ottawa.—Interesting statistical comparisons may be made from the 1910 lumber [illegible] the Dominion Fo [illegible] day.

Of the twenty-[illegible] were cut in 1910 t [illegible] feet, worth over $7 [illegible] erousfi or softwoo[illegible] ter of the total cut [illegible] formed barely one [illegible] year previous they [illegible] total. The decrea [illegible] in the amount of [illegible] yellow pine pr[illegible]duc [illegible] quarter of the [illegible] cies, while in [illegible] creased by 70 [illegible]e

Up to thre[illegible] ears [illegible] of the list in [illegible] po[illegible] when it was s[illegible] t[illegible] cut of the fo[illegible] tion of last year tha[illegible] its maximum cut [illegible] cut being decrea[illegible] million feet. Ye[illegible] six hundred per [illegible] year.

Montreal, Sept [illegible]l fold in course of er[illegible] the Dominion Sp[illegible]o [illegible] Moore, aged 44, lost h[illegible]

### The Ailsa C[illegible]

London, Ont., S[illegible] day's storm continue[illegible] north of here. At Ail[illegible] age, among the places sawmill, which was t[illegible] the Presbyterian chur[illegible] huge trees all over th[illegible] rooted.

### Disastrous [illegible]

A disastrous fire oc[illegible] Saturday night, when [illegible] to Thomas Connell wa[illegible] shingle mill. As a re[illegible] out of employment.

Owing to the hi[illegible] cinity were in great [illegible] shingles, the main [illegible] sumed. The cause of [illegible]

### Lindsay F[illegible]

Lindsay, Ont.—At th[illegible] ont in the wood workin[illegible] merman, and inside of [illegible] of the building was redu[illegible]

The present occupan[illegible] of the premises last spri[illegible] merly been conducted [illegible] owners of the property, broom, shovel and hoe handles were manufactured, as well as excelsior.

Insurance of $6,600 was carried on machinery and stock.

# "Amphibia"

**Waterproof**

# Leather Belting

is made to do hard work in a wet place better than any other Belt. Let us prove it to you by sending a Belt on trial.

We always carry a full stock of all kinds of Leather Belting.

## Sadler & Haworth

**Montreal - Toronto**

The New Slow Speed

# Sheldon Exhaust Fan

**The Fan that is revolutionizing the Shaving Exhaust Business**

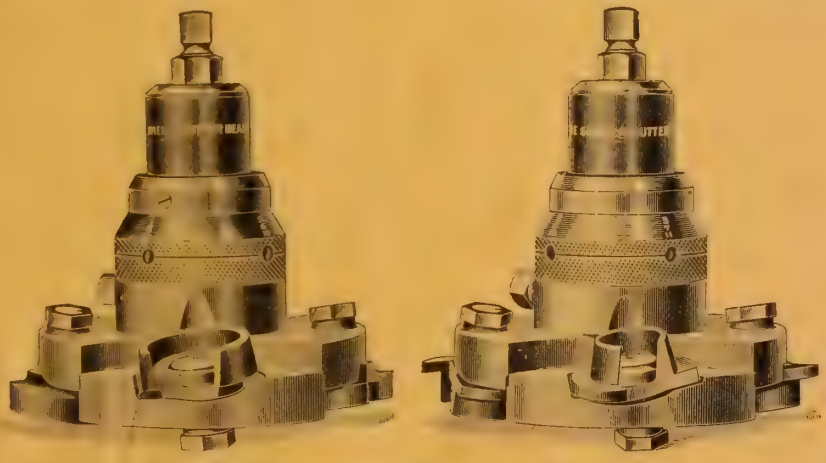
It will handle wet or dry, long or short shavings and sawdust, and will do this work with a guaranteed reduction in speed of from 25% to 40% less and with a power consumption of 20% to 35% less, than any other exhaust fan. The Casing is very similar to that formerly used, but the wheel is of an entirely different design.

**Let us tell you more about it**

## SHELDONS LIMITED - Galt, Can.

**For Flooring, Ceiling,**
**Siding, Ship Lath,**
**Double Ceiling, Doors,**
**Sash, Blinds, Etc.**

**THE UP-TO-DATE LUMBERMEN USE**



# The Shimer Cutter Head

Because of the **Complete Mechanical Features** and very **Low Price** at which it is placed before the manufacturing trade.

It is kept in first-class working order with less labor and expense than others and offers one of the very best investments, for a little thing, that can be found today.

Any size or style, made to fit machine, will be sent on trial 30 days to any responsible lumberman in this or any other country.

☞ We make many styles of Heads and Bits, illustrated, described and priced in our Catalogue, a copy of which is free to all interested people. Send for one to-day.

The dealer who accepts your order for the Shimer Cutter Head and supplies you with another means to deceive you in no small matter. Look for the Name and Trade Mark "The Shimer Cutter Head" stamped on every genuine tool. Any other is spurious—send it back—demand the genuine, of quality and helpfulness, with a record of 40 years of upbuilding and improvement. It costs no more.

## Samuel J. Shimer & Sons,

**Branch of Milton, Pa.** **GALT, ONTARIO, CAN.**

YOU want to count against friction—delays—and collapse of equipment before you buy any machine—repair is one thing—prevention is another.

WHITNEY Planers are especially made for hard wood surfacing, nevertheless, they are adopted to all kinds of lumber—even the softest and, in every instance the planed surface turned out by a Whitney will be of the smoothest.

THE gait that the Whitney Planer puts work through is swift enough to be profitable. There is never a choke down, no matter what kind of boards are brought to them.

NEVER a working day in the year in which Whitney Planers are not called upon for severe service and they stand up to it.

TO bring full conviction of the service and quality of work Whitney Planers will give you—write

---

## Baxter D. Whitney & Son

**Winchendon, Mass.**

**Pacific Coast Sales Department, H.H. PLUMMER, Manager**
Pacific Building, Seattle, Wash.

**HENRY KELLEY & CO.**
26 Pall Mall, Manchester, England

CANADIAN WOODWORKER

Toronto, October 1911


# Whitney Planers

WE give very definite information regarding the performance of Whitney Planers under varied conditions, such as only the strongest, best planing machine can stand up to, and do perfect surfacing and lots of it. These conditions embrace planing mill, furniture factory and box board planing. To obtain this information places you under no obligation.

We gladly give it to be used as an aid in securing the best single or double surface planer built. The full description of construction which accompanies this information enables more intelligent comparison to be drawn and a purchase made with the positive assurance of obtaining the better planing machine.

Write direct to us or our nearest selling representative.

## Baxter D. Whitney & Son

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**Pacific Coast Sales Department, H. H. PLUMMER, Manager**
Pacific Building, Seattle, Wash.

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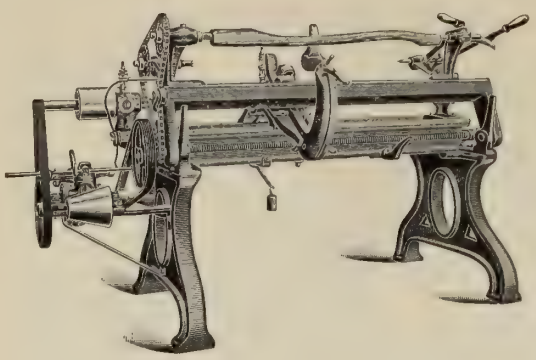
25 Pall Mall, Manchester, England



This cut shows the No. 1 Lathe for turning Axe, Pick, Adze, Sledge, Hammer and Hatchet Handles, Spokes, Whiffletrees, Gun Stocks, Lasts, and other irregular work.

**Simple Strong Durable Economical**

We also manufacture other Lathes for making Handles, Spokes, and Variety Work; Sanders, Shapers, Boring and Chucking Machines, Rip Saws, etc., etc.

Complete Catalogue and Price List Free.

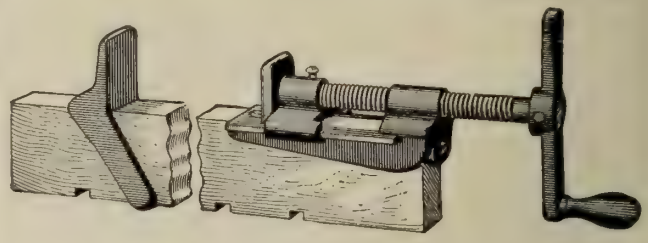
**The Ober Mfg. Co.**

**31 Bell St., CHAGRIN FALLS, Ohio., U. S. A.**

**Clamp Fixtures, Per Set, 50 Cents**

Gentlemen :—We are pleased to state that the 25 dozen Patent Malleable Clamp Fixtures which we bought of you a little over a year ago are giving excellent service. We are well satisfied with them and shall be pleased to remember you whenever we want anything additional in this line.

Yours truly, CURTIS SASH & DOOR CO.,
Sioux City, Iowa.



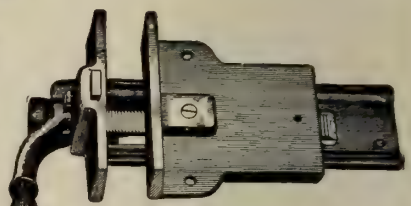
No. 1

STEEL BAR CLAMPS

The bars of our STEEL CLAMPS are especially tempered and guaranteed indestructable. Screws and fitting quickest possible action and made to stand any service or abuse. Don't fail to test sample of this clamp before you buy elsewhere.

**Over 26,000 of our Steel Rack Guaranteed Vices**

now in use. We solicit the privilege of submitting samples of these specialties on terms that will be attractive to rated firms. Write for list and prices.

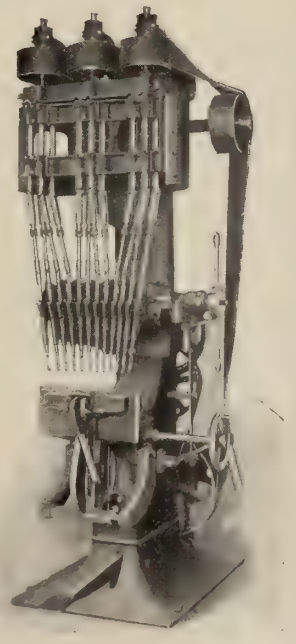


RAPID-ACTING WOODWORKER'S VISE No. 3

**E. H. Sheldon & Co., 326 N. May St., Chicago, Ills**

**Twelve-Spindle Power-Feed Universal Boring Machine With Vise Attachment**

This cut represents my **Twelve-Spindle Universal Boring Machine** with the vise attachment in place for boring any curved work, such as chair backs or slats.



**The Vise** is a very complete arrangement for holding the work. The inner jaws of the vise are of good wood and can be made any radius or shape desired. The vise is easy to operate, and the grip on the work is such that work is readily brought to the shape of the jaws. The ease with which work can be handled with this device in connection with the power feed and **quick return of the boring bits** makes it possible for an active operator to bore a very large amount of work in an hour, and to bore it all uniform and accurate, one piece being just like another. The twelve holes can be bored in just the same time it requires to bore one.

**Capacity** From 1,000 to 1,200 pieces can be bored in an hour.

**Manufactured by**

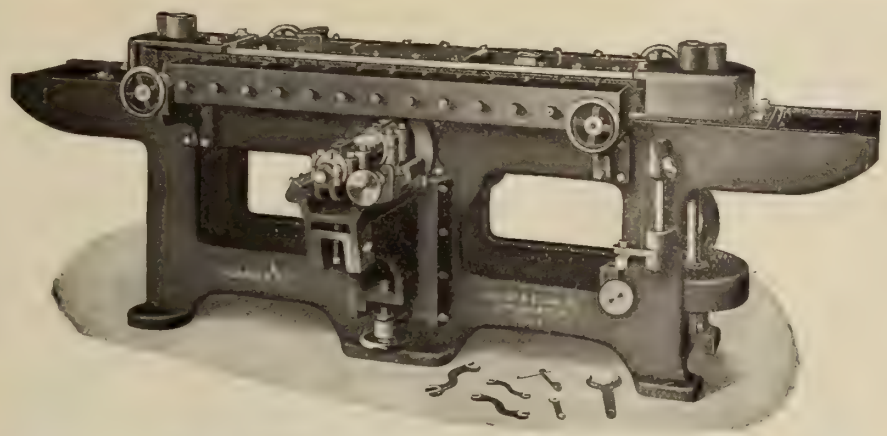
**J. M. Nash,** 842-848 30th St. **Milwaukee, Wis.**

**Carborundum Knife Grinding Wheels have cut their way into favor in many of the most prominent wood working establishments in the country**

They not only do twice the work of any other grinding wheels—but they do it better and cleaner. They stand up well—do not burn the work—do not draw the temper even from the finest steel. Require almost no attention and last much longer than other abrasive wheels.

**THE CARBORUNDUM COMPANY**

**Niagara Falls, New York.**



No. 217 Automatic Continuous Feed Glue Jointer
Patented Feb. 16, 1909.

# Ask the man who owns one

or, better still, the man who **tried** the **latest model** of **other makes**; such **great factories** in Grand Rapids as the Imperial Furniture Co., Gunn Furniture Co., Grand Rapids Chair Co., The Macy Co., and many others, **threw out new machines of other makes** and put in their place the new and improved Fay & Egan No. 217 Continuous Feed Glue Jointer.

**Some reasons for the answers you will get are:**

The superior mechanical construction of the No. 217—it's **built upon machine tool principles throughout.**

It's the only glue jointer which can **instantly be changed to make a hollow or spring joint,** the preventative for long stock opening at the ends. This **feature is patented** and cannot be duplicated on any other make.

It's **the only noiseless glue jointer**—drive is a phosphor bronze worm wheel and steel worm, running in oil, with ball-bearing end thrust, completely enclosed.

It's the only glue jointer that **doesn't have to be stopped to oil up**—all oiling and adjusting from the outside.

It's spring pressures **permit a variance of 1-2 inch** in the thickness of stock being worked.

It's the only glue jointer with a **detachable and interchangeable** link feed chain.

It will **work** stock **as fast as your operators can feed it in,** doing **many times as much work** as the old reciprocating styles.

In a word, it's **the only perfect glue jointer** now made. Let us send you a catalog and tell you where one can be seen in operation near to you, or **we'll send one on trial.** If it doesn't do all we claim you don't have to keep it.

## What the man who owns one says

Batesville, Ind.
One of your No. 217 Glue Jointers has been in operation at our factory for the past sixty days and has proven very satisfactory and think it is the best machine on the market to-day. Having a Continuous Feed Glue Jointer of another manufacturer at our furniture factory, we find your machine to be superior in many respects.
**Batesville Casket Co.**

Marion, Va.
We have been using one of your No. 217 Continuous Feed Glue Jointers for the past year and find it satisfactory in every way. It does good work and has given us no trouble.
We bought this machine on trial and accepted it at the expiration of the ninety days as perfectly satisfactory.
**Virginia Table Works**

Dallas, Texas.
In reply to yours of the 22nd inst. we will say that we have as yet not been able to give the No. 217 Continuous Feed Glue Jointer a thorough test, but as far as our experience goes until now we can say that the machine is doing all that you claim for it, and that it is a great labor and time saver for any manufacturing establishment requiring the labor it does.
**Olive & Myers Mfg. Co.**

Milwaukee, Wis.
Answering your letter of the 22nd, beg to advise that your Continuous Feed Glue Jointer, which we installed several months ago, does everything that you claim for it. We do all of our work now by running the machine less than half of the time, where it took our old machine all of the time to keep our gluers busy. We are very much pleased with it, as it has never caused us any trouble since installing same.
**Ham-Wangerin-Weickhardt Co.**

Cincinnati, Ohio.
Have two No. 217 Continuous Feed Glue Jointers in use. They are entirely satisfactory in every way.
**Pfau Mfg. Co.**

## More highly pleased owners

Jamestown, N.Y.
The Continuous Feed Glue Jointer shipped us is a very satisfactory machine. It certainly does the work much better than we could do it on the old jointer, and we can turn out a great deal more work. We are very much pleased with the machine and it has proven satisfactory in every way.
**H. P. Robertson Co.**

Chatham, Ont.
We wish to say in regard to the Continuous Feed Glue Jointer No. 217 which we bought from you some time ago, it has been continuously in use in our factory since, and has given us the very best of satisfaction. We are entirely pleased with it in every particular, and take pleasure in recommending it to anybody who wants a machine of this kind.
**Manson-Campbell Co.**

Shelbyville, Ind.
Replying to yours of 22nd inst., we beg to advise that your No. 217 Continuous Feed Glue Jointer is giving us excellent satisfaction, and we will gladly recommend this machine to anyone. We not only are pleased with the machine, but are also very well pleased with our dealings with you, as you have in every way treated us fair and square. Whenever we can say a good word for you we will be very glad to do so.
**Hodell Furniture Co.**

Houston, Texas.
In reply to your favor of the 22nd inst., wish to say we are well pleased with the No. 217 Continuous Feed Glue Jointer. The machine is doing excellent work and we consider it a great labor saver, and we cheerfully recommend it to anyone having use for a similar machine.
**Lotham, Meyers Mfg. Co.**

Cincinnati, Ohio.
Wouldn't have any other.
**Robert Mitchell Furniture Co.**

**Sales Offices:**
ATLANTA
BALTIMORE
BUFFALO
CHARLOTTE, N.C.
CHICAGO
DENVER
DETROIT
EVANSVILLE
SAN FRANCISCO

# J. A. FAY & EGAN CO.,

**Manufacturers of Wood-Working Machinery**

MAIN OFFICE AND WORKS:
**BOX 1070**
**153-173 W. Front Street, CINCINNATI, OHIO, U.S.A.**
**Established 1830**

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NEW ORLEANS
NEW YORK
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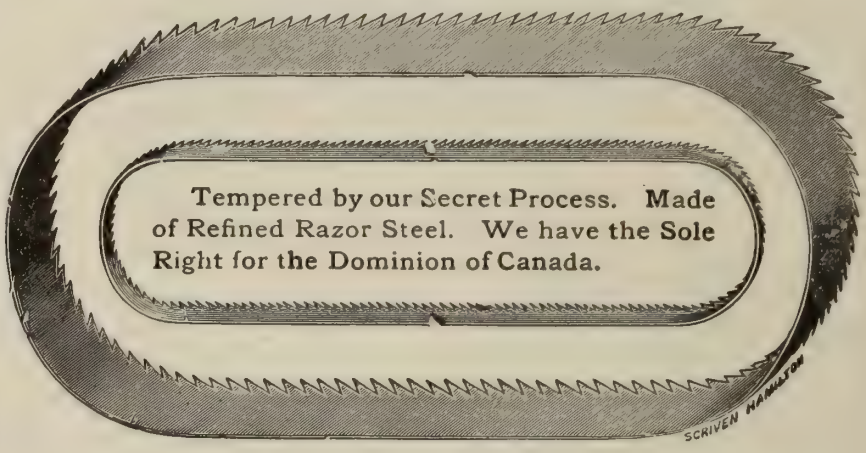
SEATTLE
VANCOUVER
PITTSBURG

# Maple Leaf Saws

MADE BY

LARGEST SAW MANUFACTURERS UNDER THE BRITISH FLAG

We manufacture Circular Saws Gang Saws Mill Saws Band Saws Cross Cut Saws Buck Saws Saw Setts etc.




We manufacture high-grade **Band Saws** of all Widths and Lengths

These Saws are made of Refined Razor Steel, and Tempered by our Secret Process; for Fine Finish and Temper are not excelled.

**"Maple Leaf" Saws** are the best-tempered saws made

We are the only manufacturers in the world who export Saws in large quantities to the United States

**Shurly-Dietrich Co., Ltd. Galt, Ont.**

Western Warehouse and Office, Vancouver, B.C.

A GOOD, USEFUL BOOK

## Wood-Working for Amateur Craftsmen

"Written So You Can Understand It" By IRA S. GRIFFITH, A.B.

125 Illustrations 128 Pages
Cloth Cover Size 5 x 7 incees

**Price 60 Cents Postpaid**

This book was especially designed to cover every essential step from the A B C to the X Y Z of woodworking. The chapters dealing with making special articles bring out every cut joint and process used in this important trade, and the proper use and care of tools, working up of materials, etc., are treated thoroughly and plainly.

CONTENTS:

Making Out a Stock Bill—Laying Out Rough Stock—Hand Saws—Sawing with Hand Saws—Planes: How to Set and Adjust the Irons—Squaring Up Mill Planed Stock—Squaring Up Rough Stock—Whetting Plane Irons and Chisels—Grinding Plane Irons and Chisels—Making a Bird Box—Making a Tabouret—How to Make an Umbrella Stand—Making a Magazine Stand—Making a Table—Making a Cabinet.

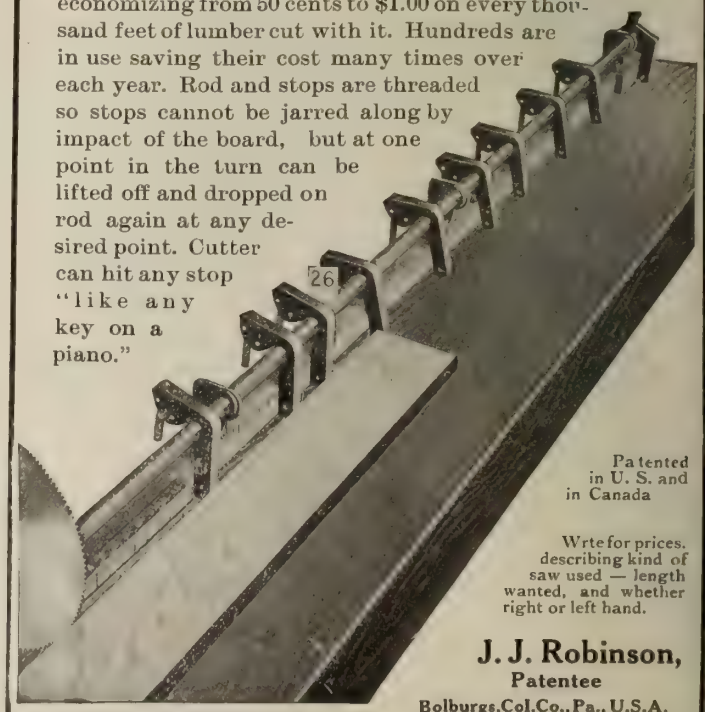
**A valuable book for either self instruction or use in manual training courses.**

BOOK DEPARTMENT

**Canadian Woodworker**

## Robinson Improved Saw Gage

**Made in Canada**—Saving Duty and U. S. Freights for Canadian Purchasers. Sent on 30 days Free Trial. If not entirely satisfactory, send it back at our expense. This Gage will save Time, Material and Mistakes, thus economizing from 50 cents to $1.00 on every thousand feet of lumber cut with it. Hundreds are in use saving their cost many times over each year. Rod and stops are threaded so stops cannot be jarred along by impact of the board, but at one point in the turn can be lifted off and dropped on rod again at any desired point. Cutter can hit any stop "like any key on a piano."




Patented in U. S. and in Canada

Write for prices, describing kind of saw used — length wanted, and whether right or left hand.

**J. J. Robinson,**
Patentee
Bolburgs, Col. Co., Pa., U.S.A.

# R. H. Smith Co., Limited

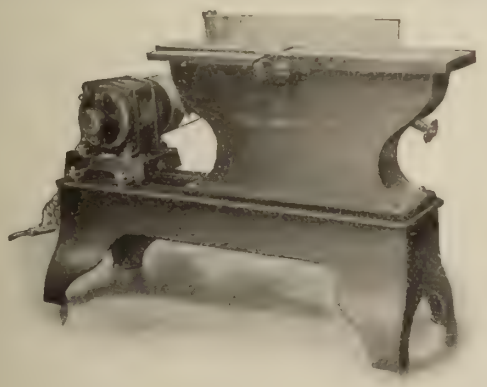
## St. Catharines, Ontario

MANUFACTURERS OF THE CELEBRATED "GOLD COIN" SAWS

**We make Inserted Tooth Saws, Shingle Saws, Cross Cut Saws, Hand Saws, etc., etc.**

**We make every kind of Saw required in Saw Mills, Planing Mills, Furniture Factories, Piano Factories, Carriage Factories, etc., etc.**

We have been manufacturing for the Canadian trade since 1855, and have maintained the same high standard of excellence. Let us know your saw requirements.



"The Porter" Jr. 5" Bench Jointer is ideal in any place where work within its capacity is done.

We equip them to your order with Square or Safety Cylinder, with or without Bench, and with or without Motor.

There is a **reason** why we ship so many of "The Porter" machines into Canada. They are **Quality** machines at **reasonable** prices.

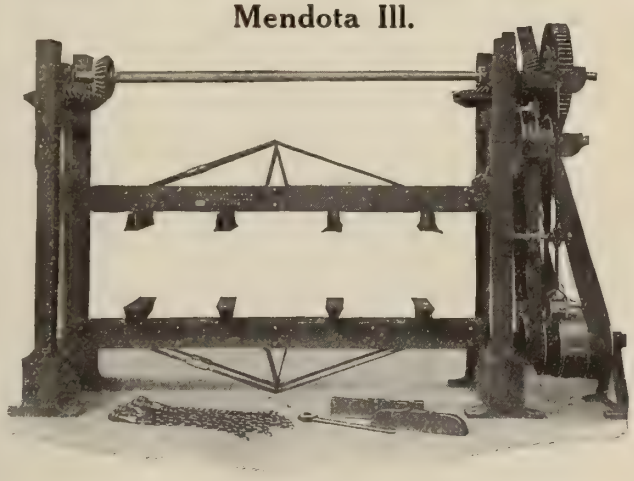
Our catalog J may be of good service to you. Send for it.

## C.O. Porter Machinery Co.,

**Grand Rapids, - Mich.**

## Black Bros. Machinery Co.

**Mendota Ill.**



## A Veneer Press with a Reputation

We would like to give you particulars of this machine, because we can show you increased production and a better finished job. :: :: :: : ::

**Better let us send you a folder about our Veneer Presse**

# Simonds Saws
and
# Simonds Knives

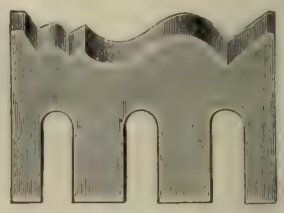
Any firm can buy steel or iron. Any firm can try in their own way to make their steel over into a manufactured product such as Saws or Wood-

working Machine Knives. They may put these goods on the open market, but what a difference from goods made in the Simonds way.

When you buy Simonds Saws or Knives you not only buy material but you also buy Experience. Our factories are manned by competent men, these

men are supervised by Experts. Men who make use of the knowledge gained by years and years of Simonds Saw making in Canada and the United States. We make our own Steel in our own Steel Mill.

There is no limit to the size of Circular saws that we make excepting the limit placed by



use. Band Saws we can furnish in all regular widths and lengths. Knives of all descriptions, also Files and Hack Saws. Simonds Saws satisfy.

In your planing mill or factory many goods such as we make must be in constant use. Use the Simonds and you will be sure of best results. Ask us any questions about the proper care of anything in our line. Get in touch with us the manufacturer and it will surely be to your advantage in the long run. It will pay you.

**Factory in Montreal**

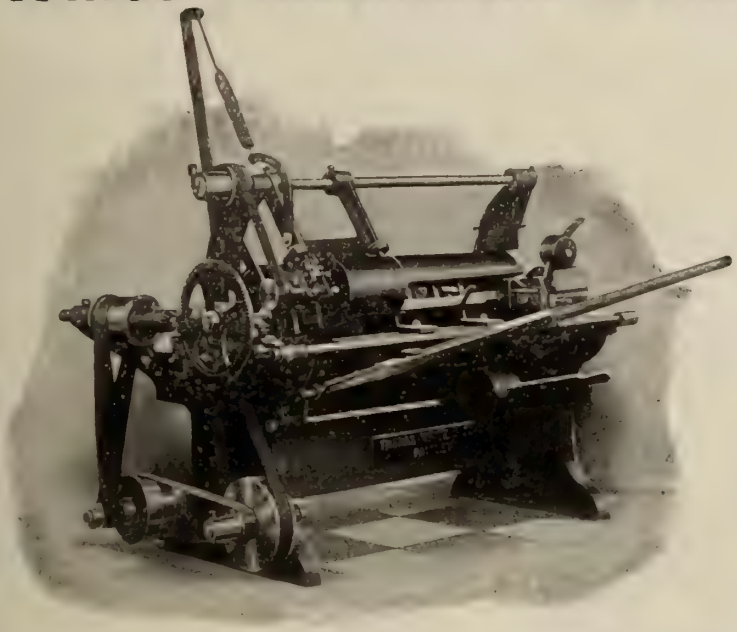
## Simonds Canada Saw Co. Limited

**Montreal, Que.**

**Vancouver, B. C.** **St. John, N. B.**

To Produce Handles and Spokes at a Profit Use a

# White Automatic Oval Turning Lathe



EASILY WORKED
EASILY SET

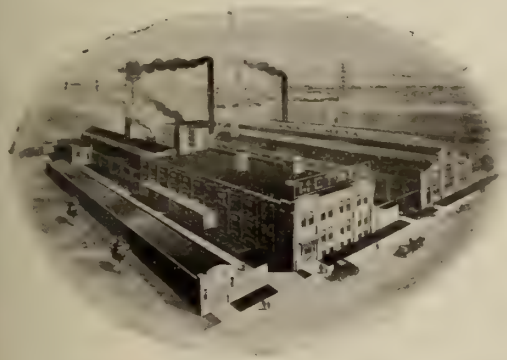
MADE IN 4 DIFFERENT SIZES
Suitable for Pick and Hammer Shafts, D Handle Blanks, Spokes, etc.

OUR SPECIALTY:
**Turning and Boring Machines**

TELEGRAMS:—WHITE, PAISLEY
CODE:—A. B. C.
ON ALL GOVERNMENT LISTS.

**Thos. White & Sons**
Engineers Limited
**Paisley, Scotland**

## The Factory



**is equipped** with all the most modern appliances and machinery for manufacturing

**Babbitt Metals**

to meet all requirements.

**And Best of All is**
**HARRIS HEAVY PRESSURE**
**the Babbitt Metal Without a Fault**

## The Man

**W. G. HARRIS,**
**General Manager**

**being in touch** with the requirements of the trade for many years, saw the great necessity for a Babbitt Metal that would give first-class results on all general machinery bearings, spent years **investigating, experimenting and testing. The outcome being the invention of**

**Harris Heavy Pressure**

**WRITE FOR PRICES**

## The Metal

**Harris Heavy Pressure** is acknowledged by engineers to be the best Babbitt Metal for all general machinery bearings. It positively eliminates friction. It runs cool at any speed. It does not shrink.

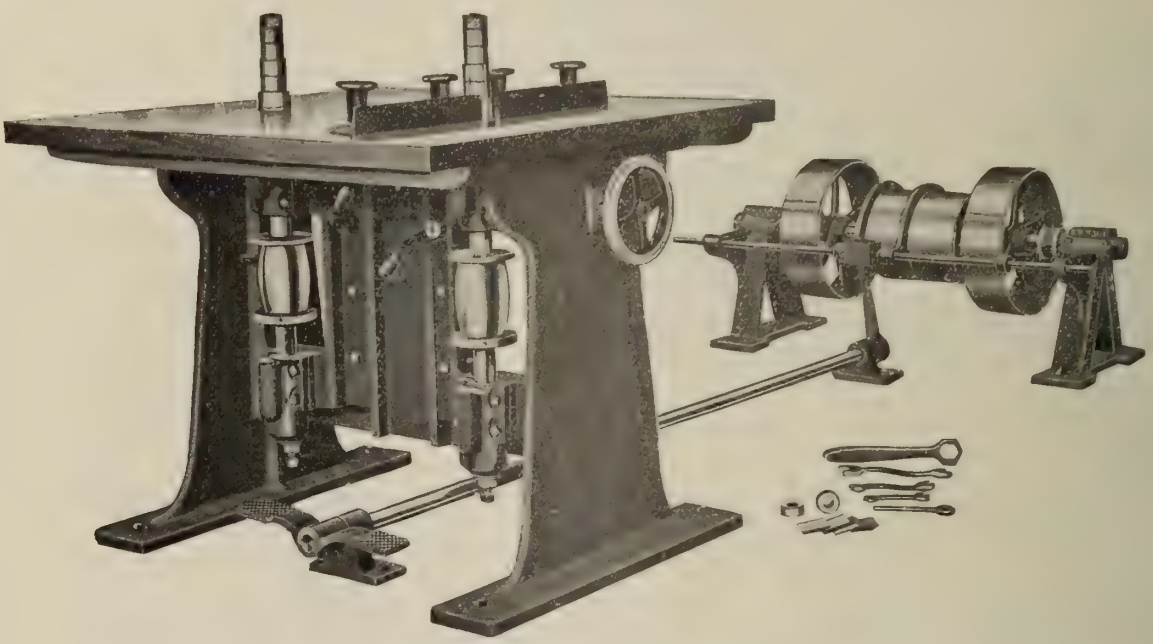
**It is a High Grade Babbitt**
**at a medium price.**

Our Guarantee is Back of Every Pound

**THE CANADA METAL COMPANY, Limited, TORONTO**

# Canada Machinery Corporation

GALT Limited



**No. 804 Double Spindle Shaper**

Above illustrates our light double spindle shaper, with frame cast in one piece, spindles of special light carbon steel, and extra long bearings. Table supplied either of iron, or glued up strips of ash and maple.

We also manufacture the most complete and up-to-date line in Canada of Matchers, Surfacers, Moulders, Sanders, Tenoners and Morticers, Door and Blind Machinery, Rip and Cross Cut Saws, Band Saws and Band Resaws, Shapers, Jointers, and Boring Machines.

WRITE US FOR BULLETINS AND PRICES.

# Canada Machinery Corporation

GALT, ONTARIO Limited

# Canadian Woodworker

**Canada's Only Woodworking Paper**

Published in the interests of Planing Mills, Saw Mills, Furniture and Piano Factories, Implement and Carriage Works, Boxmakers and Coopers.

The Circulation extends from the Atlantic to the Pacific and covers thoroughly all classes of Woodworkers in this immense territory.

**Wooodworker Publishing Co., Limited**

ARTHUR W. DYAS, President and Managing Director
RICHARD PEARCE, Editor
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**Vol. 10** **October, 1911** **No. 4**


## New Ideas

Every achievement must be an idea first—must be thought out, figured out and accepted first. Many a good idea has been lost because the first efforts to introduce it were futile. It wasn't accepted.

Some men who accept a new idea give it a short, unfair trial, and because it does not pay quickly, declare it is no good.

The best ideas in the world have been worked out through many failures.

It takes some faith—a great deal of it—to get a new idea established and it takes courage to meet the prejudice of men who are used to doing the thing the other way—the old way.

Every new idea that has come to the world has met with opposition.

Printing first had to be done secretly. The first man who ever carrier an umbrella was stoned for it. The effort to introduce stoves met with stubborn resistance. The railroad, telegraph, telephone, typewriter, linotype machine, and rural mail delivery were opposed and ridiculed.

It is well for you to remember these things when considering a new idea.

No one can calculate what an idea is worth in your business.

If it wasn't for ideas you would not make a cent.

Times are changing and now ideas are daily coming. They are certainly worth considering by you.

The greatest wonder of the world is the man who knows everything relating to wood-working machinery. Yet there are many who claim to have reached that dizzy height. They may have a fall some day, and great shall be the fall thereof.

## Comparison of Yellow Pine and Douglas Fir

Wood-using industries in Canada reported to the Forestry Branch for 1910 the use of $542,000 worth of yellow pine and $69,500 worth of Douglas fir.

From scientific investigation and experiment it has been ascertained that our native Douglas fir could in many instances replace yellow pine at present use in Canada. Yellow pine is necessarily all imported from the United States, and if a species of native wood could be introduced to take the place of yellow pine, the change would be of great benefit in the development of Canadian industry. Douglas fir is a lighter wood than yellow pine and has a greater limit of elasticity, that is, stands more bending without taking permanent set. Likewise, compression perpendicular to grain is resisted equally by both species. In the western states the uses of this wood are being rapidly extended and its recently discovered qualities are introducing it for purposes for which previously only yellow pine was thought fitted. Douglas fir is a light and strong wood easily worked. For railway cars and vehicles it is used throughout the United States, where its elasticity and durability recommend it for nearly all purposes except where a hardwood has to be used. Because of its beauty of grain and the attractive effects which may be obtained by staining, it is very popular for inside panel work, door and window frames and cheap classes of furniture, particularly "mission" furniture. Furniture, car and vehicle manufacturers would benefit if Douglas fir was used to a greater extent in Canadian manufacture.

## The Ontario Sash and Door Association Will Hold Another Meeting

We are informed by Mr. F. W. Brennen, the secretary, that a meeting of the association will be held at an early date. Notice of which will appear in this paper. The last meeting was held in the King Edward Hotel, Toronto, last June, with a large number of members present.

## Where Co-operation is Necessary

In working hardwood in the planing mill or factory there is found more or less sap stain and discoloration. Where wood is to be finished light or "natural," these discolorations are objectionable, but by exercising care in selection they may be used advantageously where dark or heavy stains in the finished work will obscure the discoloration. This is one instance that illustrates the importance of harmony and co-operation between different departments. The stock-cutter and the machine man should know the shade and tone of finish that is to be put on the wood, for this will enable them to discriminate in getting out stock.

Some day we will reach the point when a kiln without a recording thermometer will be considered in practically the same category as an engine without a governor. And when we reach that point indifferent kiln-drying will be an exception rather than the rule.

## The Tallest Tree

Australia claims to have the tallest tree in the world. It has been long thought that to California belongs this distinction, but while California trees are of gigantic dimensions, they do not come up to Australia's eucalyptus trees. The Californians are noted not so much for their height as their girth and diameter. The tallest tree in California yet discovered was found by actual measurement to be 340 feet high. Australia's record gum tree can beat this by 140 feet. Baron Mueller (formerly government botanist of Victoria) is stated to have said that Australian gum trees attain a height of 550 feet; but the tallest tree even the baron ever measured was a prostrate one on the Blacks' Spur, ten miles from Halesville, totalling 480 feet. This tree was 81 feet in girth near the root. Another, found in the same locality, was 415 feet high, with a circumference of 60 feet at the base.

# The Standardization of Matched Stock Favored by Ontario.

## Millmen, Builders and Contractors are nearly all unanimous

The Canadian Woodworker has been requested by a number of builders and contractors doing business in different parts of Ontario, to request the manufacturers to adopt a standard similar to that followed by the Coast manufacturers, who match their stock to a standard size and pattern.

Personally we have always been in favor of a uniform pattern. Therefore in order to get the views and find out how far they would lend their co-operation in the matter, we wrote letters to several manufacturers. We herewith publish some of the replies.

It is interesting to note that all are decidedly in favor of the standardizing of flooring, sheeting, shiplaps, ceiling, etc., as well as what is known to the trade as stock moulding and house fittings. We have also interviewed a number of manufacturers and with only one exception all were agreeable to the movement.

### How the Present System Affects the Builder

We know a builder in eastern Ontario who builds houses for sale. He does not confine himself to any particular district, town or city, but buys the land and builds where he thinks best for his purpose.

All his material is purchased in car lots from manufacturers offering the best terms. When the buildings are completed in a certain place he gathers up what is left over and ships it to the uncompleted jobs with the object of working it up. And it is right here that his troubles commence. For if the material has been run—as often happens with him, in different mills—it must be kept separate to be used apart from the other material.

So much for this particular builder. And he is only one of many who have the same difficulty with the runs of different mills. But the dealer in lumber and builders supplies has a grievance worth considering. A striking instance of this was offered recently as the following incident will show. We called on a retail dealer who carries everything from joist to the finest trim and noticed that he had the same width of crown moulding in two different racks. Not because of any difference in grade or quality of material, but simply for the reason that the stock had been bought from different manufacturers. Other moulding has to be treated in the same manner. Also all the matched stock must be kept in separate piles. Troublesome its't it, Other instances could be cited to show that the claim for standard sizes are well founded.

### How Flooring Is Matched at the Present Time in Ontario

Up to about ten years ago what is termed one inch flooring was finished 15-16 in. thick. To-day most mills make it 7/8 in. but in some districts it has become the custom to face both sides and finish to 13-16 in. Builders like this method. They have the choice of either side and the percentage of waste is greatly reduced. But the custom is not likely to become universal in Ontario until all mills are equipped with double surface matchers. We are informed that the standard for matched stock on the Pacific Coast is as follows. What is termed 1¼ in. flooring is finished 1 1-16 in. thick and the one inch is finished 13-16 in. One side only being dressed. Sheeting is matched two sides and finished ¾ in. thick. We also understand that the widths are standard and made to fit a guage or template. The term stock moulding used in connection with this article means of course the universal patterns. If these were run to fit a template exact mumbering would be certain.

It will be noted that one of our correspondents suggests that the illustration of flooring, etc., shown in the Shimer catalogue be taken as a basis when considering the standardizing of matched stock and mouldings. The suggestion is a good one and will no doubt receive the consideration it deserves by the manufacturers who seem anxious to bring this about. And to help the movement along the pages of the Canadian Wood-worker are open to employee and manufacturer alike for free discussion of the subject.

The illustrations shown herewith are details of window frames and trim manufactured by the McLean Lumber Company of Windsor, Ont., who also furnished the drawings to enable us to show the style most in favor in western Ontario.

It would be a good idea if manufacturers in other districts would let us know what styles are most in demand as we think it would be an aid in reaching a compromise.

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### Manufacturers Express Their Opinions

Hamilton, Ont., Sept. 21, 1911.

Woodworker Publishing Company,
Toronto, Ont.

Dear Sir,—My foreman, Mr. D. Turner, has requested me to answer your communication re the uniformity of matching and mouldings which we manufacture.

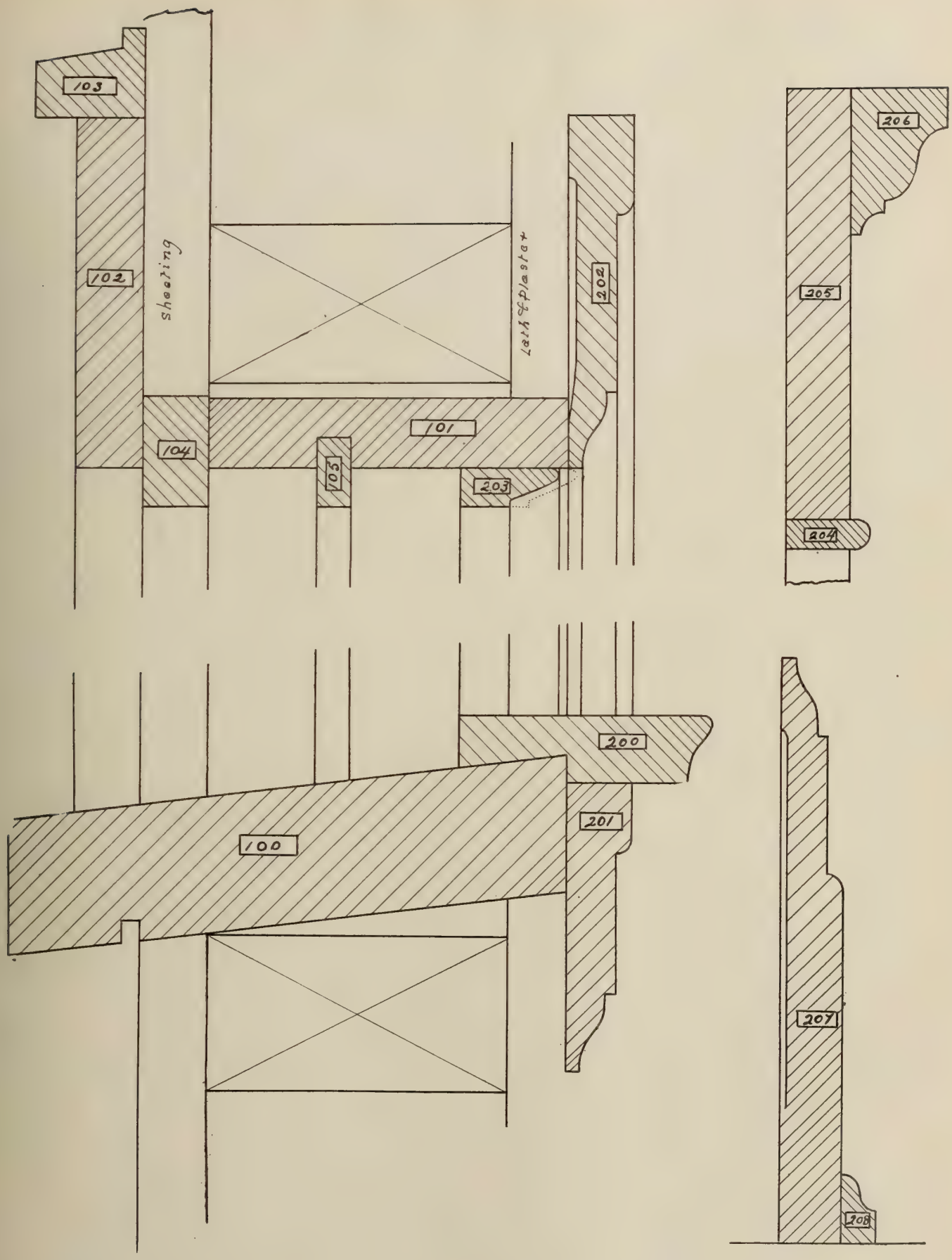
I may say we are a law unto ourselves in this respect, like nearly everyone else in the business in Ontario, but know of no good reason why the standardizing of matching should not be compulsory. I understand such a custom is in force in the United States, but there is more than one standard in use, and when a customer orders a car of matching, he states in his order which particular standard he requires, and the manufacturer who runs his stock to fit a metal template (which template is an exact reproduction of the product about 4 inches long) is bound to ship just what the standard calls for.

There are a good many mill men who have adopted the system of centre matching the most of their product, and this plan has its advantages, principal of which is the fact that you have two faces to select from in laying your flooring or sheeting, as the case may be.

With regard to the pattern of mouldings we do not find any particular necessity for uniformity, and as each section of the country is affected to a certain extent by the ideas of the leading architects in that particular section, and as the great proportion of mouldings are made to details, I do not think there is such a crying need for reform in this line as in that of matching.

Would suggest the examples of flooring, etc., as shown in the Shimer catalogue, as a basis for consideration of this question.

THOS PATTERSON,
The Patterson-Tilley Company




No. Stock designs mouldings
100—Window and door sill.
101—Window jumb for window frame, frame bldg.
101—Outside window casing and watertable outside door casing
103—Drip cap or water table cap.
104—Blind stop
105—Parting stop
None of above belong to inside finish.
200—Window stool.

205—Head casing and inside door jamb.
206—Head mould or head cap.
207—Eight-inch base.
208—Shoe
201—Window apron.
202—Window and door casing
203—Window and door stop
204—Neck mould (seldom used)

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Windsor, Ont., Sept. 29, 1911.

Woodworker Publishing Co., Ltd.,
Mail Building, Toronto, Ont.

Dear Sirs,—In reply to your letter of the 19th inst., we would say that with regard to matching and dressing we aim to have our own work uniform so that a piece made yesterday will match a piece made years ago. To accomplish this we have templets to set up. This work should also match most other machine work, but a great deal depends on the workman, as to whether he keeps his tools in proper order, and having them in order appreciates the importance of following a detail. Of course, the man who is particular about his tools, is, as a rule, particular about details.

We might say that we use the Shimer cutter heads and their catalogue showing details is a valuable help. It can be had for the asking.

As to the mouldings—some years ago we adopted a line of moulding along simple lines and nearly like the universal moulding. We find these giving good satisfaction and they are now made by all the mills here. Of course, we make a lot of moulding to architects' details, but our own line is so satisfactory that architects frequently say that the nearest to it in stock will do.

We enclose herewith a detail sheet which you can use as you wish. If you or any of your readers consider this sheet of any value you can have copies for the cost of paper and postage—say twenty-five cents each.

We appreciate your effort to keep your readers informed along lines of interest to their respective trades. Wishing you every success,

Yours very truly,
The McLean Lumber Co., Ltd.

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New Westminster, B.C., Sept. 25, 1911.

The Canadian Woodworker,
Toronto, Ont.

Gentlemen,—Replying to your of the 18th re manufactured lumber, would say that all the coast mills manufacture to a standard size in all thicknesses and widths, hence all the matchings of the coast mills will match together. Mouldings also are made very closely to a standard.

Yours very truly,
The Small & Bucklin Lumber Co., Ltd.

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Hamilton, Ont., Sept. 29,1911.

The Canadian Woodworker,
Mail Building, Toronto, Ont.

Dear Sirs,—Your favor of 19th received, regarding matched flooring. In reply beg to say that all the woodworkers in Canada run various thicknesses and grades of material, none of which are exactly the same thicknesses or grooved in same place, so do not match perfectly, but there is a little moving and a little writing done in regard to this, but not definite steps have been taken. The same thing with finishings and all the O. G. mouldings is different in pattern and price.

We hope that you will be able to do something to get some patterns and set prices of this as it is of great advantages to the people in this business.

Thanking you for the opportunity in expressing ourselves and hope you will have success.

Yours truly,
The M. Brennen & Sons Mfg. Co., Ltd.

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Winnipeg, Man., Sept. 22, 1911.

Canadian Woodworker, Toronto, Ont.

Dear Sir,—We are in receipt of your favor of the 18th inst., and would say that we do not run a manufacturing plant. Our business is strictly confined to stock goods. The coast manufacturers give a list of standard finished sizes which are strictly adhered to, so that we do not run any risk in buying from five or six different mills, in regard to flooring, ceiling or siding not matching up. As to mouldings, these are all made to a standard size by the different manufacturers. The same sizes, as a rule, are stocked by the different jobbers throughout this territory.

Yours truly,
The Empire Sash & Door Company, Ltd.

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Ottawa, Ont., Sept. 21, 1911.

Canadian Woodworker,
Toronto, Ont.

Dear Sir,—Your favor of the 19th inst. to hand, and in reply would say that in our flooring line we run our flooring to suit our own requirements, and do not, as a rule, figure on matching with any other mill in this district. The same applies to mouldings.

Yours truly,
W. C. Edwards & Company, Limited.

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Winnipeg, Man., Oct. 9, 1911.

Canadian Woodworker, Toronto.

Dear Sir,—Referring to your favor of the 27th ult., we might say that the manufacture of lumber, west of Fort William, such as the Rainy River Lumber Company, the Pigeon River Lumber Company, Rat Portage Lumber Company, at Kenora, all use the Universal Moulding Book, published by Shattock & McKay Company, revised May 2nd, 1911.

If you wish to use any information which we gave in our letter of the 22nd ult., you are at perfect liberty to do so.

Yours truly,
The Empire Sash & Door Company, Ltd.

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## Power at Lowest Possible Cost

Gas engines have in recent years taken a great place among the power producing machines of the world. The Campbell Gas Engine and Suction Gas Plant, which was shown at the exhibition in machinery hall, is a machine which is ideal for its purposes. They point out the way for manufacturers to save money in fuel and in cost of operation.

The Campbell Open-Hearth Suction Gas Plant is the best machine of its type now on the market and the gas engine is of highest quality, is strongly built and simple of operation, and is a good money-saver.

The Campbell Gas Engine and Suction Plant is the most practical machine of its kind made. The Canadian agents are Chambers and Simpson, 103 Bay street, Toronto.

# Some Time Savers for Sash Makers

## Some Simple Methods in Making Storm Sash That Will Give Good Results if Directions are Carried Out.

By Old Canadian Sashmaker

October and November are usually busy months in the sash and door factories in this country, owing to the fact that builders are anxious to close in their jobs before the real cold weather sets in.

It's along about this time too, that orders are placed for storm sash which are generally wanted at once. Storm sash are considered a bug-bear by some sash makers because of the numerous sizes and styles ordered. But there is nothing difficult about the job if a few simple rules are observed. I have had a lot of experience at this work, and while I could not always follow the same system throughout in every shop in which I have been employed, I never had any trouble in making this end of the business a paying proposition.

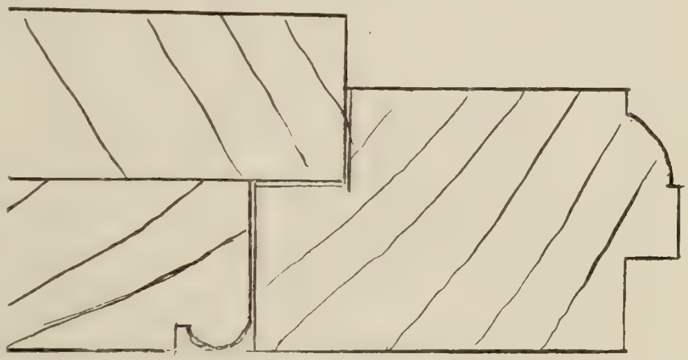
Sometimes I would run off a lot of fifty storm sash along with forty or fifty pairs of inside sash. At other times if I had been busy on 1¾ sash, and the orders for storm sash had accumulated so fast that I had to get them out at once, then I would run them off by themselves, as many as one hundred perhaps. There is no need to tell sash makers that among a bunch of a hundred, many different sizes and styles and numbers of lights would come in for consideration.

This is the way I take care of the job. First if the bills are not numbered I attend to that myself and while doing so I note how many sash are ordered of or about the same size. I never use a rod but lay out for mortise on one of the styles. I always found it a good practice to lay out stiles for the longest sash first as a knot may be right where a bar mortise is to be made, or perhaps one of the longest stiles in the bunch might have a shakey end. These I lay aside to take the place of some of the shorter stiles that may be faulty.

Looking over my list, I find that I have two sash to make 5 ft. 10 in. high and four 5 ft. 10¾ in. I lay them all out 5 ft. 10¾ in. I follow this rule right along and even at that I have often had as many as thirty pattern stiles in one run of sash. If any of these pattern stiles are required to lay out the upright bars or for any other purpose I can always find them because I mark the ends with a red or blue lead. And I write remarks on the pattern stiles such as height of number 25, 29, 45 and 50, or any other information I know will be required by the men who will handle the work later. This saves a lot of running around and asking questions, so I make it a practice to mark particulars on the rails; also sometimes I make a sketch on the pattern rails. This is a help to the man who squares off for bar mortises. Also, it helps the bench hands, especially nowadays when inside sash are made up in such a large variety of styles, and the outside sash having to correspond to some extent. It means that many different lengths of bars will be found in a batch of a hundred storm sash. To illustrate, in laying out sash with the meeting rail off the centre, I have made two lights in the bottom and one in the top part. The difference in the upright bars being less than one-eighth of an inch.

While on the subject of bars, I will say that a system I find useful in making it easy for the men who assemble the parts, is to mark bars of near the same length across the tenon using a black, blue and red lead. By this means the length of bars are easily distinguishable. This idea can be extended if the circumstances require it. For instance, if a number of bars are 12 1-16, 12⅛ and 12 3-16 shoulder and another lot are 14, 14 1-16 and 14⅛, the marking on the tenon can be done in this case too with the same advantage. It is almost needless to say that my bench hands are aware of my system and appreciate these helps.

When laying out rails, I follow out the same system as when laying out stiles. When I find on looking over my bills that some of the widths are say 2 ft. 10⅛ and some 2 ft. 10¼, I make the shoulders the same. This I do in all cases when the fractions of an inch appear. This does away with frequent changing on the tenon machine. Another rule I find of great advantage is that if a certain order of sash are to be cramped and finished first I mark them with a cipher, known of course to the bench hands who will rush them through without further instructions from me. In some parts of Canada I have made a large number of segment head sash and have had as many as twelve of the same width, but with the rise varying from 3 in. to 3¼. I always split the difference. This means fewer patterns. I always keep my segt. head patterns; they come in handy.



New Way to Rabbate Storm Sash for ⅞" Casing.

A cheap way to make segt. head storm sash is to make the outside only on the sweep, which I cut to line on the band saw after the sash are cramped and sanded. I measure to spring and crown and I get the sweep by bending a thin strip. Its a near enough way for storm sash. I have also had to make storm sash for plastered and frame houses. Frames in such houses are usually made with a ⅞ casing. The custom is, in some districts, to make the storm sash, stiles and top rails three inches wide and rabbate top and sides of sash to lap over casing. This means more lumber also it means a heavy cumbersome looking sash. The illustration shows a neater and better method. The cut shows the stiles full size but only enough of the outside casing and blind stop is shown to convey the way the rabbating is done. The bottom rail will be rabbated deeper according to style of cap sill etc.

About ventilators, when laying out stiles I mark S. V. which is understood to mean sliding vent. If the ventilator is to be in the bottom rail I write the letter V. on the rail. This is a time saver as it does away with further reference to the bills.

Another hint when making out list for sawyer. I make him aware what rails will be cut for ventilators by simply writing B. R. V. which means "Ventilator in Bottom Rail." He likes to know because he often comes across a piece of stock with black or loose knots that he knows will cut out in cutting ventilator opening.

These are some of the little things that count in the sash business and the man who knows them gets more money per day than the other fellow. So I have endeavored in this article to show how I make storm sash at a profit.

My men, both the bench and machine hands, fell in rapidly with my system wherever employed, and the fact that during an experience extending over twenty years and in as many cities and towns, surrounded by varied conditions and all classes of men, the cost of mistakes that could be charged directly to my department have not amounted to the sum of two dollars.

I do not say this in a boastful spirit, but as man to man in the trade. Woodworker to woodworker.

## Trade Enquiries

The following inquiries have been received from English and other countries relating to Canadian trade. The names of the firms and their addresses may be secured by interested parties by writing to the Enquiries Department, Canadian Woodworker.

Any of our readers who are answering these inquiries, should not fail to forward references, particularly if bankers' references.

Please note the reference number when requesting addresses.

1. **Furniture.**—Large firm in Havana asks for catalogues and quotations on household and office furniture.

2. **Furniture.**—A large firm in Havana asks for catalogues and quotations on household furniture.

3. **Framework in the rough.**—A Yorkshire manufacturing company desires the addresses of Canadian manufacturers who can supply framework in the rough for the construction of deck chairs.

4. **Belting.**—A firm in Havana would like to represent a Canadian exporter of belting.

5. **Broom sticks.**—A commission firm can handle large quantities of broom sticks on commission.

6. **Lumber.**—A leading firm of commission merchants would like to correspond with Canadian exporters of lumber.

7. **Refrigerators.**—A London firm desires to open up business connections in Canada for the sale of refrigerators suitable for household requirements.

8. **Agents.**—A Sheffield company manufacturing every description of tool steel seek suitable Canadian resident agents.

9. **Box shooks.**—A firm of commission merchants would like to hear from manufacturers of box shooks.

10. **Machinery.**—A Cuban firm inquires for manufacturers of machinery in general.

11. **Lumber.**—A commission merchant in Havana would like to correspond with Canadian exporters of lumber.

12. **Lumber.**—A Bristol firm wants hardwood lumber planks, deals and boards, or cut to sizes; also dowels, blinds, rollers, etc.

13. **Agricultural implements and machinery.**—A South African manufacturer's agent, with good references, wishes to communicate with Canadian manufacturers of agricultural implements and machinery.

14. **Furniture.**—A South African manufacturers' agent desires to be placed in communication with Canadian manufacturers and exporters of all kinds of furniture.

15. **Corliss machinery.**—A large firm in Havana asks for the exclusive representation of a Corliss machinery manufacturer.

16. **Machinery in general.**—A Cuban firm would like to receive catalogues and prices from Canadian manufacturers of machinery.

17. **Furniture.**—A Havana firm of commission merchants asks for catalogues and prices of furniture in general.

18. **Lumber.**—A Cuban firm is in a position to handle lumber on commission.

19. **Lumber.**—A firm of commission merchants in Havana would like to correspond with exporters of lumber.

20. **Box shooks.**—A Cuban firm would like to hear from Canadian manufacturers of box shooks.

21. **Wooden crate material.**—A firm of lumber dealers in Bermuda would like to hear from Canadian lumbermen supplying wooden crate material.

21. **Canadian pine.**—An importing timber firm in Carlisle and Glasgow would like quotations on what is there called yellow pine, but is known by either white or Norway pine in Canada. Specifications will be furnished on application to the Department of Trade and Commerce.

22. **Canadian pine.**—An important timber firm in Carlisle and Glasgow would like quotations f.o.b. Montreal or Quebec on white or Norway pine 3rd deals and 2nd or mill run sidings.

23. **Agricultural implements and machinery.**—A South African manufacturer's agent with good references, wishes to communicate with Canadian manufacturers of agricultural implements and machinery.

24. **Churns, cream separators and dairy utensils.**—A South African manufacturer's agent desires to be placed in touch with manufacturers of churns, cream separators and dairy utensils generally.

25. **Wood working machinery.**—A South African manufacturer's agent wishes to get in touch with Canadian manufacturers and exporters of woodworking machinery.

26. **Agricultural implements and machinery.**—A South African house of commission agents and brokers desires to be put in communication with Canadian manufacturers and exporters of agricultural implements and machinery.

27. **Furniture.**—A South African house of commission agents and brokers wishes to communicate with Canadian manufacturers and exporters of all kinds of furniture.

# An Interesting Door Panel Experience

## Showing Necessity for Air Tempering Stock before Gluing Joints, to Prevent Opening in the Centre

By "The Overseer"

For some months articles have appeared in the American Woodworker enquiring why it is that glue joints open in the centre.

A number of answers have been printed in the same paper suggesting that the material had not been air-dried—or sufficiently kiln-dried—but none of the writers have stated positively that such was the cause.

As a reader of both the Canadian and American Woodworker, I would like to give my experience about some glue joints.

We had received an order for a large number of quarter-cut white oak veneer doors, the panels for which were from two feet up to two feet six inches wide and seven--eighths thick. We had no means of cross- banding so we used one inch stock, ranging from four to eight inches wide.

Thus it will be understood that the panels when finished had a good many joints—say, an average of five. The material used was thoroughly kiln-dried, and was taken direct from the kiln to the cut-off saw and cut to length. At this stage the work on the job had to be stopped in order to take on another and similar one, wanted at once. The stock for the panels was taken from the same pile, but had the added advantage of having been fourteen hours longer in the kiln.

The work of finishing up these panels complete was done rapidly. In fact, all the glue joints were made the day the stock was taken from the kiln.

When the doors were finished they were taken to the buildings, and because I do not wish to leave out any of the particulars, I will say the plaster was dry. The basement also was in good condition and the doors were treated to a coat of filler on date of arrival.

In the meantime nothing had been done towards finishing up the first lot of panels. Nor was anything done for a month or six weeks, when the job was taken up and completed and the doors shipped. It was along about this time that a complaint reached us that the panels in the first doors shipped were opening up in the centre. We didn't worry about it, being so sure that the material was good and dry and the glue of the best to be had for the purpose, but something had to be done, so I went to the job, and—well, I was surprised to find that, sure enough, the case had not been in the least exaggerated, but what surprised me most was that there was no sign of the ends opening up—especially as these were raised panels.

We had the doors brought back to the shop, and fortunately for us the panels had been dropped in only, so all we had to do was to remove the moulding from one side and lift the panels out and break the joints. This was not so easy as we egpected, owing to the ends remaining tight. However, we succeeded at last in rejointing all bad joints and heard no more about the matter.

We had not, up to the time of this experience, given any thought to air drying our stock after its removal from the kiln, so naturally the next few weeks were anvious weeks for us, as we expected the same trouble with the second lot of panels. But we have received no complaints concerning them. It is five years since they were made up. I have seen the doors several times during that period and can say the joints are sound.

It will interest readers to know the style of door was one-panel, the size varying from 2 ft. to 2 ft. 6 in. wide by about 5 ft. 6 in. long. The style of door which gave us the trouble with the panels was two upright and one cross-panel—the upright panels averaging 4 ft. long and the widths from 9 in. to 12 ins.

In order that nothing of the slightest importance relating to this glueing and panel experience be omitted, I will say that the same men handled both jobs. Also, the glue was from the same barrel. In short all the conditions were alike, excepting that the material of one lot of panels was allowed to undergo a temporary process after being kiln-dried and it proves in a striking and forcible manner that air drying is absolutely necessary in making glue joints intended to stand up under ordinary conditions and use and not open in the centre.

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## Solving the Knotty Probem

We had our attention drawn the other day to a machine for high speed work. As the Canadian Woodworker is an advocate of this class of machinery, we were naturally interested, and give here a minute description of the machine, which is a Number 77 Planer and Matcher manufactured by the American Woodworking Machinery Company, of Rochester, N.Y.

The machine will plane or match, at the rate of 150 feet per minute, knotty lumber without pulling out knots, or even breaking them up. Boards full of branch knots can be worked on this machine so smoothly that the whole of the board can be used for ordinary paint work without any further smoothing up.

This is only a part of the saving effected by Number 77, and only a small part too, because it does away with a lot of cutting out of bad spots, and in cutting out defective places it is necessary to make two cuts to do so. If these pieces that have to be cut average four inches long, and there are three to a board, it means a loss of one foot in each length. Nor is this all, as it means also that when a job of siding or partition work has been finished, or a floor laid, fewer butt joints will be seen. Naturally the consumer is looking for this kind of siding, flooring, etc. We call our readers attention to the advertisement of the manufacturers of this machine on the back cover.

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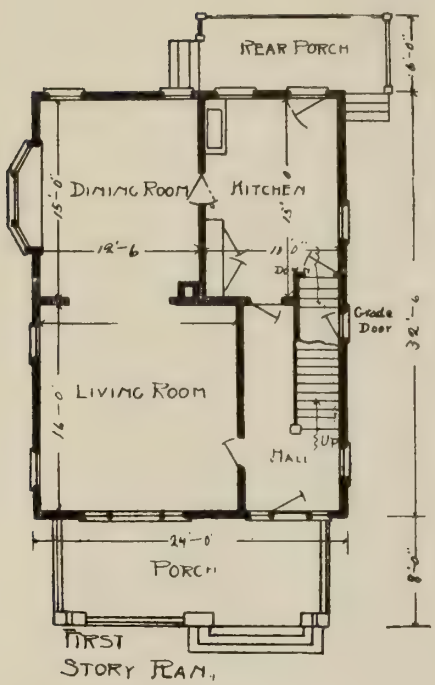
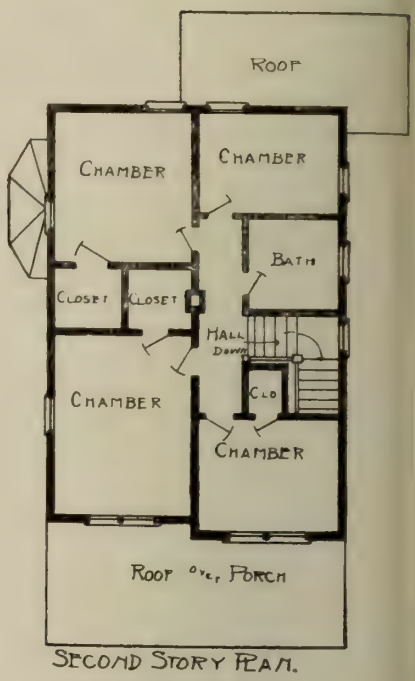
**Miter Box.**—J. G. Wortham, Tullahoma, Tenn. This box consists of a bed, which may be widened or narrowed to conform with the dimensions of the work, a swinging arm supporting and carrying the saw guide, and capable of being lengthened and shortened, to correspond with the positions of the bed sections, and an adjustable back, together with a scale for indicating angles assumed by the arm.

# How We Should Plan the Home

## A $2,800 House which can be Built to Suit any Locality if Suggestions are Carried Out






This frame building, 24 x 33 feet, two storeys, attic and cellar. The first floor contains three good rooms with stair hall, the basement stairs are under the front stairs with a grade door. Eight-foot front porch, 6-foot rear. The second floor has four bedrooms, bathroom and closets, and attic stairs will go up from the front bedroom. Finished in white pine with hardwood trim on ground floor, this house can be built for $2,800, including hot air furnace and plumbing.

Cost of plans $12.00. Bill of material $6.00. Plans will be reversed or made for brick veneer or plaster

## Consider Your Surroundings

In connection with the plans illustrated in this page it is well to ask ourselves do we, when about to build, take into consideration as fully as we should, the very important question, where to build? It would seem that we do not, otherwise there would not be seen so many houses built amid surroundings that rob them of the distinctive charm and attractiveness the architect had in mind when preparing the plans.

If one's mind has been made up to build on a certain lot in some particular street just opening up and with none or very few houses already built, then the planning of the house is not a difficult matter, but if the street and immediate neighborhood has been fairly built upon problems will present themselves that can only be solved by a comprehensive study of the architecture that obtains close by.

This is the correct and only way by which harmonious effects are to be had when home planning.

In submitting these plans to the intending builder the following suggestions may prove helpful: The front elevation may be changed greatly by arranging the lights in the upper part of sash by either dividing them into small lights or by the use of artistic window glass.

The selection of window sash requires good, sound judgment. Few people seem to realize this, but in order to do so it is only necessary to note the appearance of a house before and after the sash are placed.

Another style of front door may be substituted for the one shown, that can be had at the same cost. Changes such as the ones mentioned often add greatly to the value of the house because they serve to bring about the object aimed at, viz., a pleasing exterior in keeping with the surroundings.

The plans show that interior has been laid out in a very thoughtful manner and the back porch could be carried up higher and enclosed with sliding sash making a nice sun room.

## English Building Methods in the Seventeenth Century

Some interesting light is shed on the methods of building construction employed in England during the 16th century, in "Mortimer's Husbandry," an old book published in 1712. The text deals with quantity estimates, cost of materials and labor, and certain regulations regarding the erection of structures, and valuable as affording a comparison in this respect with work undertaken in the present day.

According to this authority, the cost of constructing a barn that had a single stud, or one heighth of studs to the roof, was 2 shillings (50c.) per square foot. For a double stud and girth it was 2 shillings

6 pence per foot. In measuring the structure the dimensions of one side and one end were taken. If, for instance, a barn was to be 60 feet long and 20 feet wide, making 80 feet, the cost of hewing the timber, sawing it out, framing it, and setting it together, was 2 shillings 6 pence (62½c.) per foot; 10 pounds ($50) if the carpenter furnished the timber.

## The House of 1712

Referring to the construction of houses of that period, the volume states, "Upon a good foundation, two bricks or 18 inches thick for the heading course is sufficient for the ground work of a common structure, and six or seven courses above grade to the water table, where the thickness of wall is cropped off the thickness of a brick, or 2½ ins. on each side. For houses of three to five stories, the walls of such from foundation to water table should be three courses of heading brick, or 28 inches in thickness, and at evedy storey a water table and off-set on inside for joist to rest on; the joist to extend in wall one-quarter part of the better bond. For partition wall 1½ brick thick, and upper stories one brick or 9 inches thick."

To dig foundations one brick wide and one foot deep, the price was one penny per foot. Where it was 2½ ft. it was 2 pence per foot, and so on.

### Brick Work

Bricklayers' work was measured by the pole square of 16½ ft. square, taking out the door and window openings. A bricklayer received 2 shillings 6 pence per day, and a laborer 20 pence; while the price of brick was 14 shillings per M., lime 4½ pence per bushel, and roofing tile 2 shillings 6 pence per 100.

The average price for bricklayers, who furnished everything, was 5 pounds a pole square of 272¼ square ft., that is, for house work. For the construction of walls, alone, where the bricklayer furnished the materials, the cost was 4 pounds 10 shillings. For laborers only, it was 1 pound 2 shillings per pole square for 272¼ square ft. 1½ brick thick. "If a wall is more or less than 1½ brick thick, it must be reduced to a brick and a half by multiplying the length and height by the number of half bricks the wall is in thickness, and divide the product by 3 and that by 272¼ inches."

In size, the bricks were 9 ins. by 4½ ins. by 2½ ins and 4,500 were required for a pole square, together with 25 bushels of lime.

### Brick Making

Regarding the manufacture of brick, 7 tons of coal (2,000 lbs. to the ton) were allowed in burning a clamp of 16,000, or 10 bushels of coal per thousand of brick, while the workmen received 6 shillings per thousand for making them; "a square yard of clay being required for 7 to 8 trousand bricks."

Roofing tile was measured by a square of 10 by 10 ft., and 3 shillings 6 pence was allowed per square for the labor. To provide all but the tile, the price was 12 shillings; while to furnish everything, it was one pound 6 shillings per square. Roofing tile was laid in mortar or cement on lath, and 3 bushels of lime were required per square. The cement was laid on the first course of tile near the middle, and the next course bedded in it and joined on the underside; 100 lath and 500 nails being required per square. The nails were hand made and courted.

Thatching roofs with stray was done at a price ranging from 12 shillings 6 pence, to 3 shillings per square of 10 by 10 ft., and with reeds at 4 shillings per square; 1,000 reeds costing about 15 shillings, covered 3 squares of the roof. Two good loads of straw were sufficient to cover 5 squares. The thatch was tied on with ropes or writhes.

### Carpenter Work

All sawing of lumber was done by hand in the saw piles. The price was 2 shillings 8 pence to 3 shillings per 100 square feet, measured at the middle length of the log.

Heart lath of oak were 1 shilling 10 pence per 100. Sap lath of oak were 1 shilling 8 pence per 100, and fir lath were 12 pence per 100. The carpenter work was done by the square of 10 by 10 feet or 100 square feet. At London, the book states, "they will build a house four storeys high for 40 pounds ($200) per square, if built of oak, and 30 pounds if built of fir. This includes mason work, etc."

## NEW BOOKS

### Woodworking Safeguards, by Van Schack

The above is the title of the latest book out dealing with the prevention of accidents in lumbering and woodworking industries. Published by the Aetna Life Insurance Company, Hartford, Conn.

It contains hundreds of illustrations showing safeguards fitted to woodworking machinery, and the descriptive matter is thoroughly practical in every respect. It also contains many suggestions of value to the manufacturer and operator, telling how to get the best results from safety devices.

We heartily recommend it to all engaged in the woodworking trades.

### Our New House—How We Plan to Build It

This is a book of sketches, ideas and suggestions with drawings by Louise Perrett.

The explanation for publishing this book it that it is the ambition of every person to some day build his own home.

Blank pages are left in the book for the purpose of pasting in pictures or photographs that may have been gathered from time to time from one source or another. Then when the real planning is done these can be used to get the best results. The pictures may be of interior and the furnishing of individual rooms, window seats and so on, and is published by Rulby & Britton Company, Chicago.

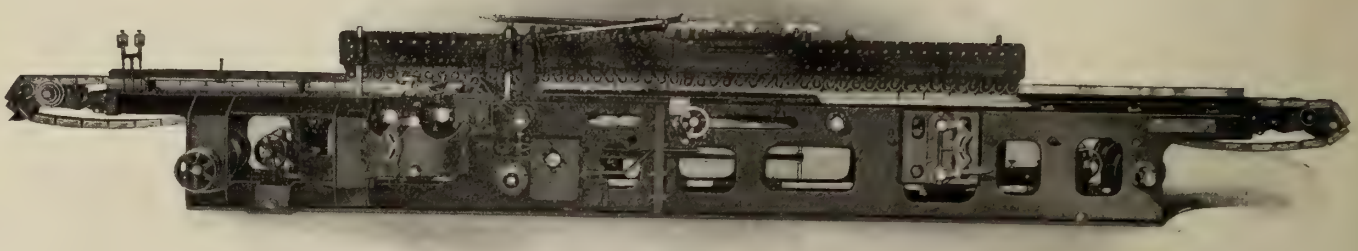
## Recent Invention

**Dresser for Band Saws.**—F. P. Smith, Baypoint, Cal. This improvement provides an attachment to the usual grinding machine, the operation of which results in removing the burr at the edge of the face of the teeth, and to reduce the teeth to the same spread; provides means for dressing the sides of the teeth subsequent to grinding, and to accomplish the same automatically, and to shape the sides of the teeth to conform with the set thereof, and provides means for regulating the pitch and spread of the grinding members.

Note.—Copies of these patents will be furnished by the Canadian Woodworker for fifteen cents. State name of patentee.

## This 1911 Model of the

# Linderman Automatic Dovetail Glue Jointer



## Makes a Tapering Wedge Dovetail Glue Joint

**A Glue Joint that proved by the technical test made at the Purdue University to be stronger than the flat or "V" joint or the natural wood. Its use then gives the positive assurance of the best results obtainable.**

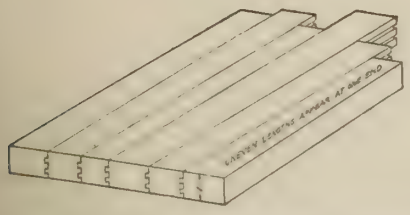
TO make a Glue Joint as strong as the natural wood it is necessary for the wood fibre by **close contact** and by **adhesive** to be knit together substantially as well as nature binds its wood cells. Warm lumber—warm glue—and a warm room gives the adhesive an opportunity to enter the pores of the wood—but absolutely perfect and effective pressure the entire length of the joint must be exerted to insure fibre contact—and the escaping of the glue to the surface of the lumber does not necessarily force the glue to enter the pores of the wood.

The basic reasons for the extra strength of the Linderman Wedge Dovetail Joint can be stated briefly as follows :—

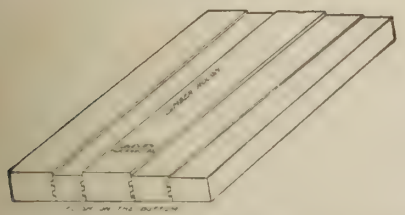
1st. Due to the shape of the joint—50 per cent. to 100 per cent. more glue and fibre surface.

2nd. The close fit of the sides of the dovetail form a pocket for the glue, preventing its escape, while the tongue and groove are gradually progressing to a fit—forcing, not merely permitting, the glue to enter the fibre.

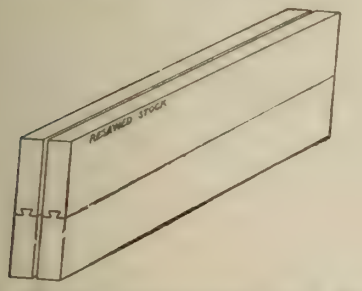
3rd. The rub joint effect—as the tongue and groove wedge "home," that combs the fibre in the same direction, permitting a matted fibre union.



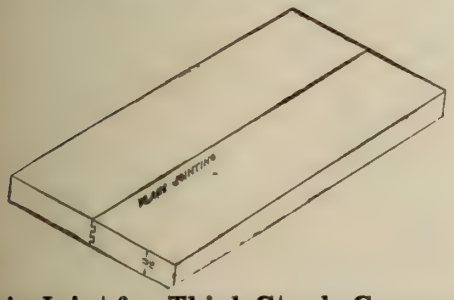
Any Uneveness in Length Appears at One End



Any Uneveness in Thickness Appears on the Top

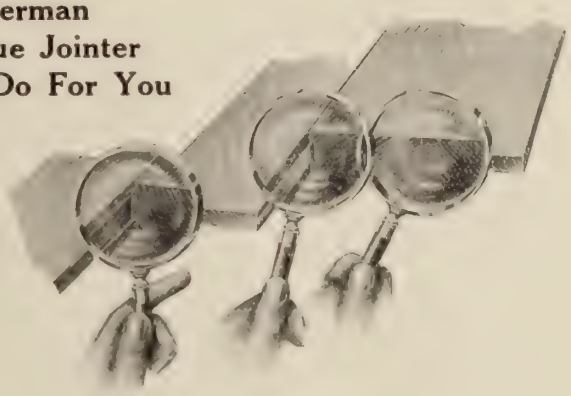


Two or More Dovetails Can Be Cut For Re-sawing



Plain Joint for Thick Stock, Cores, etc.

## What the Linderman Dovetail Glue Jointer Will Do For You



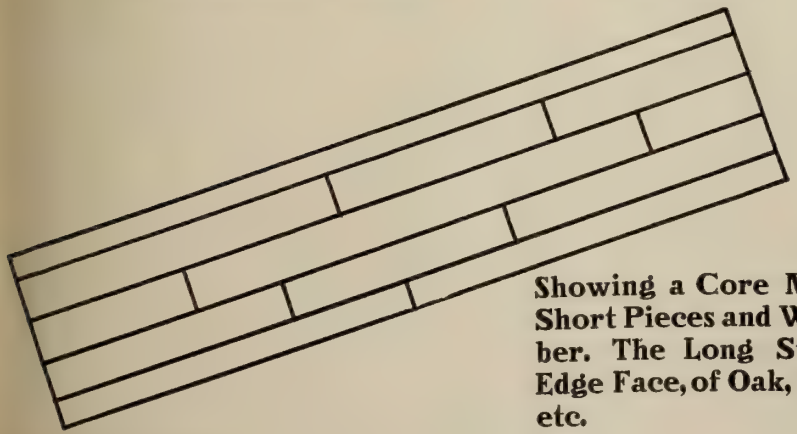
For the lumber manufacturers one of the most discouraging propositions is the disposing of narrow widths and short length stock so as to make a profit on it. Many manufacturers have found that by the use of the Linderman Automatic Dovetail Glue Jointer they are enabled to build up this narrow width into wide lumber and use it for their own products such as the manufacture of boxes, shelving, partition boards, and so forth, and quite a few of them who have no manufacturing plant sell them at a price varying from $2 to $8 per thousand more than what they had been heretofore able to obtain for the narrow widths.

For the box manufacturer there is no more profitable proposition than that of installing a Linderman machine and buying all narrow width, short length lumber and mill culls and converting them into one-piece ends, sides, tops and bottoms, at an average cost of from 50 to 75 cents per thousand board feet. This will enable the box manufacturer to buy his lumber from $2 to $5 a thousand cheaper and to put it into a package that is much superior to the ordinary box. In the 1911 Model of the Linderman Dovetailer, due to the tapering wedge attachment, it is possible for the box manufacturer to produce thinner stock which will make a lighter box, enabling him to compete with the substitute package.

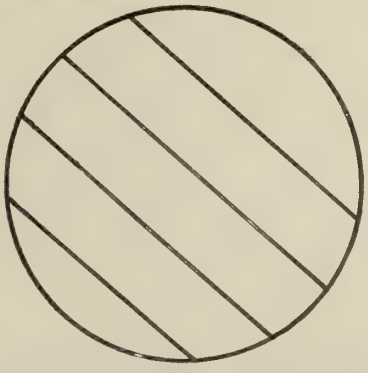
We will be very glad indeed to send samples of the Linderman Joint and give further details to anyone who desires them.

# Canadian Linderman Company, Limited

**MUSKEGON, MICH.** **Works at** **WOODSTOCK, ONT.**



Showing a Core Made From Short Pieces and Waste Lumber. The Long Strip Being Edge Face, of Oak, Mahogany, etc.



Heading for Barrels, Casks, Tubs and Cases

# The Veneer Saw and the Sawmill

Among the earliest developments of veneer making, the veneer saw played a conspicuous part. In other words, veneer sawing is not by any means a new branch of the veneering industry. The veneer saw was developed by Brunel back in England before the real birth of rotary veneer making and veneer slicing as we know it to-day. Consequently, in the present development of veneering, leaving out of consideration some of the special work of ancient business times, the veneer saw is the Nestor of the business.

In those early days the veneer saw was also pretty closely associated with the sawmill. The sawmill was in the primitive stages of development and it is more than likely that Brunel closely associated the two in his mind. It is not likely that he used a sawmill to square up his stock or make flitches for the veneer saw. It is more probable that he squared his logs by hewing and prepared his flitches in the same way. But, just the same the veneer saw has always been closely associated with the saw milling idea.

In the development of veneer making in this country, the veneer saw has not been as closely associated with the sawmill in the past as it is likely to be in the future. Often the veneer saw has been part of the equipment of a veneer cutting plant, and if the saw milling operations were included, they were usually a side issue to take care of rough logs and to do some flitching for the veneer saw.

Often the manufacturer of sawed veneers goes to the country mills to buy his flitches, and keeps clear of saw milling operations entirely, and the sawmills which supply his requirements stay out of the veneer business.

Of late years there is quite a tendency to unite saw milling and veneer sawing, for which there are some logical causes.

One is that veneer flitches should be worked while they are fresh and green. Exposure to the air and seasoning develop cracks which injure veneer, as well as make the flitches more difficult to work. This would not occur if they were sawed into veneers while they were fresh from the log. Therefore, the closer the veneer saw is connected with the sawmill producing the flitches, the better.

Another thing making for this closer association between the veneer and hardwood mill is the scarcity of fine oak timber for quartering, which is leading to the production of more of it in the form of veneer to economize in timber, and also to the seeking of combinations which will get the most wide stock with the least waste out of the timber available.

The ideal combination, theoretically at least, is for the sawmill to convert its largest and best figured oak into quartered veneer flitches and to work the narrow stock, or quite a percentage of it, into material for hardwood flooring and parquetry.

Nothing but narrow stock is wanted in hardwood flooring, while the wide stock is preferred for veneers. Even though some narrow veneers are cut, still the trade prefers the wider stock out of which it can always get all the narrow needed, and from which it also has trimmings that supply the requirement for the smaller dimensions.

These and other causes making for economy and a closer clean-up are bringing veneer sawing plants to the attention of hardwood sawmill men who take to the idea kindly because it is a sawing proposition. It appeals to them more than rotary machines and slicers because they understand the operations better. The indications are that as the trade uses more veneer and less of thick lumber in quartered oak, there will be more of veneer sawing attached to saw milling enterprises.

In this connection there is another feature, apart from making quarter-sawed veneer, which might well receive attention of millmen. This is the providing of much more of the thick veneers used by planing mills throughout the country. There is hardly a factory planing mill in the country which does not have to resaw some of its inch lumber to make thin stock. This veneer varies form 1/4 to 3/8 of an inch in thickness and a lot of it is used for making door and cabinet panels, pigeonhole work, etc.

The man operating a veneer saw in connection with his sawmill might well make a specialty of cutting veneers or thin lumber of various thicknesses, 1/8 in., 1/4 in., 3/8 in. and 1/2 in., and find a good market for his product at excellent prices. Not only is this true of quartered oak, but of several other varieties, like plain white and red oak, gum, birch, beech or any other wood that looks promising for a face veneer. Sometimes these veneers may be cut in whatever sizes and lengths are convenient, but usually a study of the regular dimension sizes most used should be made, and specific dimensions be cut and carried in stock.

There is a lot of time and material wasted at the planing mill in converting lumber into veneer which might well be avoided by a more general production and purchase of thin lumber by remanufacturing consumers. It will require more detail and care in making and handling this kind of product than in the cutting of thicker lumber, and in some ways it will require more attention than the handling of thin veneer. For one thing it will require careful piling for drying, after which it can be bulked in bundles and piled flat so as to hold it straight.

The main thing is a close study of the requirements of the planing-mills and kindred plants by sawmill men who are following up the idea of adding a veneer equipment.

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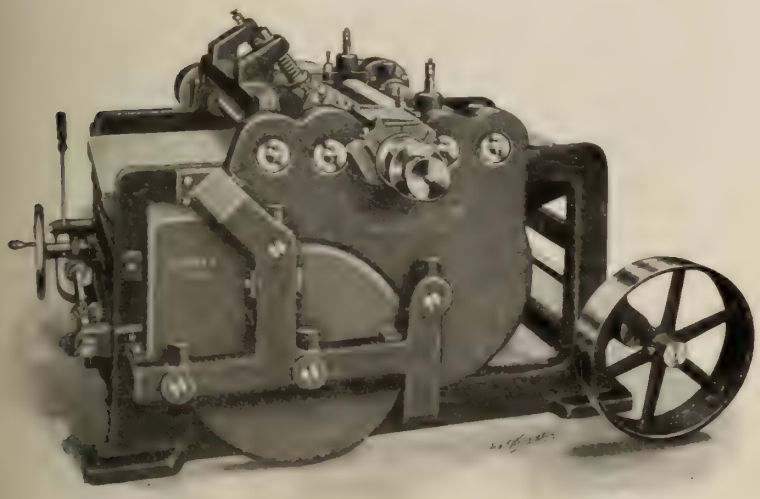
### A Splendid Tool

We are pleased to illustrate herewith a new single cylinder surfacer which has proved to be especially meritorious in the manufacture of fine furniture, or where fine work is required with an increase in output. The work is absolutely smooth without a sign of a knife mark. Samples of stock surfaced on this machine which the manufacturers are sending out certainly substantiate al that is said about it.

This machine is being built by J. A. Fay & Egan Company, in their big woodworking machinery plant at Cincinnati, the largest in the world. This company dates back to 1830, and their latest models, of which this No. 156 Single Cylinder Surfacer is one, contain the accumulated ideas of eighty-one years' experience in building woodworking tools.

A great factor in the production of such fine work on this machine is the manufactures' new circular cutter head (patented March 28, 1911) equipped with thin

air hardened steel knives. Built on those scientific principles that enable it to make a perfect cut, this head is at the same time the most simple of all the round heads now on the market, no springs or other arrangements liable to become worn being used. The knives are held in place by milled stel blocks, fitting accurately into milled ways and held in place by hollow head set screws countersunk into the head. This arrangement holds the knives in a positive grip from which they may be removed, however, when desired, in a moment.



For those manufacturers who desire to keep their machine keyed up to its highest efficiency all day long, the makers furnish an attachment which grinds, sets and joints the knives on the cylinder without having to remove same from the machine. "Efficiency is now the watchword in all lines and it is little things like this that go a great way to increasing the profits of the manufacturer.

You will note from the illustration of this machine that all gears are covered and that stud gears are eliminated entirely.

Large illustrations and full details of the construction of this No. 156 surfacer will be furnished upon application to J. A. Fay & Egan Company, 153-173 West Front Street, Cincinnati, Ohio.

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### The Charm of Mahogany

It is doubtful if any one man, even among the students of the business, could give a concrete and specific explanation of why mahogany is so popular in this country, and it is doubtful if one would get two answers alike if an expression were asked from a dozen different men on the whyfor of the popularity of mahogany. But, that mahogany is popular in this country no one will attempt to gainsay; so popular, in fact, that practically every family feels that its furniture is not complete without some mahogany. We import for use in this country a quantity of mahogany varying in value from two and one-half to four million dollars' worth a year. This is the value of the raw material alone, and its value turned into lumber and veneer is, of course, multiplied. It is said by those in position to know that tne United States uses more mahogany than all the rest of the world combined, and so much more as to represent somedhere between 75 to 95 per cent. of the total production.

These few facts are given as evidence of the popularity of mahogany as a sort of preface to the matter of why mahogany is in such favor, but really evidence of this kind is not essential, because everybody that knows anything about furniture and interior finish has instilled into them a kind of inherent respect for mahogany. Just why or where it comes from may be a little difficult to understand.

When we try to study mahogany analytically and describe its peculiar points of favor we can dissect the subject and find several things, including polish, color, sentiment, mechanical points, strength, durability and figure

It is probable that sentiment is the strongest factor in the whole group, but generally, too, sentiment must have some kind of meritorious base otherwise it will not hold through generation after generation.

It will be noticed that in the early introduction of it there was first objection made to it, because of the difficulty of working it, but this difficulty was more than outweighed by the beauty of finish. Also, it was found that it had many ideal characteristics as a cabinet wood. There is not much disposition of the wood to swell and shrink. Once it is thoroughly dried out, it retains its dimensions, does not warp or twist, neither does it develop unsightly cracks where joints are made, and for this reason it is often used even where its beauty is not a factor. It is used in the making of camera boxes where it is imperative to have wood that will not shrink and make cracks through which light can come, and also the low grade mahogany is sometimes used in making mountings for cuts and etchings used in printing.

That is a quality that mahogany and walnut have in common, that of not swelling and shrinking or warping after it is once dried and fitted together. It is properly classed as a mechanical point of excellence, and it is doubtful if the general public knows anything about it, though they may be aware that a piece of cabinet work done in mahogany stays neat and nice and does not shrink and show unsightly cracks.

The fact that it will polish excellently is another point in its favor, yet there are several other woods that will take the polish equally well that have not been in any such strong favor.

Perhaps next to sentiment comes color as a strong factor making for the popularity of mahogany. There is something about the reddish tone in mahogany that is in harmony with the American spirit. It is cheerful and lively, not strong enough to be irritating and objectionable, yet loud enough to be in keeping with the hustle and bustle of the wide-awake Americans.

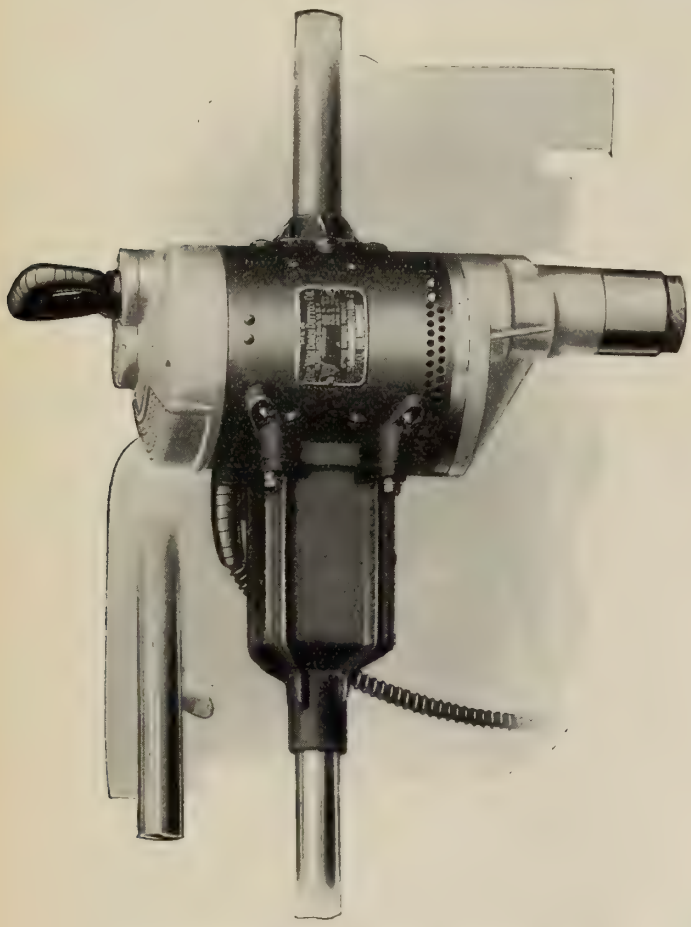
Then in addition to the pleasing tone of the general color there are many attractive figures in mahogany and some of these bring quite fancy figures.

Strength and durability are factors that were given consideration when mahogany was under discussion for ship-building and structural purposes, but they are not really determining factors in the matter of the popularity of mahogany for furniture. Almost any cabinet wood has all the strength and durability required for general furniture making.

Perhaps one might sum it up by saying that the principal elements that make up the popularity of mahogany in the American mind are. first, sentiment; second, color, and the mechanical qualities of producing good joinery and a high finish, and undoubtedly the greatest of these is sentiment.

# New Portable Electric Drills

A new line of electrically operated portable drills and reamers has recently been brought out by the Van Dorn & Dutton Company, Cleveland, Ohio. Several changes in design and various improvements over the Hard Service line formerly made by this company have been embodied in their construction, although the only claims made by the maker are marked improvements in the construction both electrically and



**The New Type DC—3 Portable Electric Drill**

mechanically considered rather than anything radically new. The special features claimed for these tools are durability, simplicity in construction, reliable operation, ability to withstand long continuous service, the lightest possible weight that is consistent with the power developed and the minimum amount of repairs. Eight types of machines go to make up the new line, six of which have a capacity for drilling holes from 0 to 2 in. in diameter for operation on direct current circuits of either 110 or 220 volts and two sizes with a drilling capacity up to ⅜ in. for operation on either direct or alternating current circuits of the same voltages. Figs. 1, 2 and 3 show three of the direct current machines having maximum drilling capacities of 1¼, ½, and ¼ in. respectively, while Fig. 4 illustrates the smaller size of the universal drill.

Series motors developing the greatest amount of power obtainable for the size and weight are used. In the larger machines four pole motors are employed, while those of the smaller are of the bi-polar type. The design is such that the harder the tool is forced the greater is the torque developed. The armature is of the slotted drum type and is built up of special analysis soft steel laminations on a hollow shaft, each disk being uniformly insulated. The armature and field coils are form wound with insulated soft copper wire and all insulated parts are subjected to a very high voltage test.

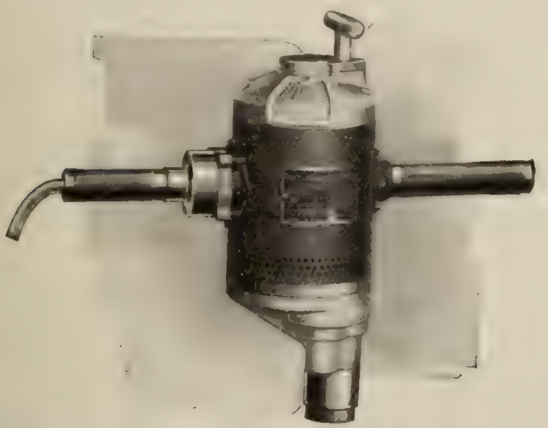
In the larger machines the field frames are constructed of sheet steel, while in the smaller tools this part is built up of laminations in a manner which is very similar to the construction of the armature. This construction gives great rigidity with light weight. By removing the screws that hold the bottom head and the armature and plate, all interior parts and connections are readily accessible. The larger sizes have a removable socket or adapter set into the spindle which enables the tool to be removed quickly without using a drift. The lower head and the gear case are reinforced with ribs to prevent distortion are made of cast aluminum and bronze.

Special attention has been given to the matter of lubrication and the bearings in designing these drills, as they are two features which are of great importance in tools of this character. A simple but very effective method of lubrication has been adopted. The gears are inclosed in a case which is entirely separate from the windings and not only serves as a housing for the gears, but also as a lubricant chamber for the gears themselves and the spindle and the thrust bearings. Channels running from this case to the bearings enable all of them with the exception of that supporting the spindle to be lubricated while this one is provided with an easily accessible receptacle. The motion of the gears forces the lubricant through these channels, thus assuring proper and sufficient lubrication at all times. The oiling system is so designed that one charge of non-fluid oil, it is claimed, will answer for several weeks. Ordinary machine oil can be used for lubricating the spindle. The wipe system is employed for this part, and it is so arranged that the wick is constantly in contact with the spindle. In designing the bearings an ample factor of safety was allowed, and it is claimed that friction has been reduced to a minimum. For the high speed members imported ball bearings are used, while elephant bronze brushings are used as bearings for the slower speed members.

All of the gears used in the tool are made from an alloy steel and are hardened and ground to size to secure great strength, and long wearing qualities. The teeth forms are accurately generated. The spindle and the socket are of special design which is said to eliminate slipping and breaking, and these parts are made of a special grade of steel which is hardened and ground. A fan having sufficient capacity to keep the motor cool is provided with the drill and this is of a special design supported at the top and the bottom by a rim which gives it strength. The heated air is forced out by the fan and is replaced by cold air which is drawn in by suction.

A quick-break switch having a capacity of 50 per cent. in excess of that required is employed. In the larger machines, which are also used for reaming, mechanically operated automatic switches are used that will stop the drill if the operator should accidentally release the handle when the tool is in operation. These switches will break instantaneously, thus eliminating

a very heavy and destructive arcing, while in the smaller machines a special design of switch is employed in which the contacts are designed so as to be readily replaced at a low cost. The brush holder is well insulated and direct connection is secured from the brush to the terminal block by leads. The brushes can be readily removed, although they are firmly held in place. In general, the construction of this line is such that the tools are easily assembled and taken apart and all parts are interchangeable and easily accessible.



**A Portable Direct Current Tool for Drilling ½" Holes in Steel**

The sizes and capacities of the eight types of machines are given in the following table, the first six being for direct current only and the last two for either direct or alternating current.

| Type | Drilling Capacity in. | Reaming Capacity in. | Weight lb. | Height in. |
|---|---|---|---|---|
| DC—4 | 2½ | 1 5-8 | 85 | 20¾ |
| DC—3 | 1¼ | 13-16 | 54 | 17½ |
| DC—2 | ⅞ | 11-16 | 30 | 14 |
| DC—1 | ½ | 7-16 | 20 | 13 |
| DC—0 | ⅜ | | 14 | 12¾ |
| DC—00 | ¼ | | 6½ | 9¾ |
| DA—0 | ⅜ | | 14 | 12¾ |
| DA—00 | ¼ | | 7 | 10¾ |

**The Type DA—00 Universal Drill**

The height measurement given in the last column of the foregoing table is made from the top of the head cover to the end of the spindle or chuck, as the case may be. The first three machines are not equipped with a chuck, but the remaining sizes can be equipped with either a chuck or a spindle. When the machine is equipped with a chuck the height measurement is increased by 14½ in.

### The "Speeding System"

What is known as the "speeding system," by some termed scientific distribution of labor, has been introduced in many industries, and various are the comments which have been made as to its results. By some it is regarded as a sort of heaven-sent blessing, which is destined to relieve human labor of a good deal of its wasteful and unnecessary drudgery. As applied however, to our modern industries, the system is being most roundly condemned by responsible labor leaders. The system is said to be brutal in its application. Work is divided, sub-divided, and re-subdivided for the purpose of alloting to a workman a single operation. In the subdivision work it is so arranged that workman only completes a small per cent. of the whole operation. So far this may be termed "section" work, and is in vogue in numerous industries. But after the subdivision and allotment has taken place, the Taylor system introduces a new feature to drive workmen at full speed. A workman selected for a certain operation or section of work must measure up to a high standard as regards physical energy, deftness, and mechanical skill. He is then assigned a certain task, an inspector is placed over him fortified with a stop watch. A turn of the head, looking up, false motion, an instant of relaxation, spitting, or any movement not in accord with exactness required is instantly caught by the stop watch and recorded against the workman. The highest speed obtainable, after experimenting with the most skilful and highest speed workmen, becomes the standard of efficiency for every man to be employed on that particular operation. No consideration is to be given the average workman, no matter how proficient he may be, as the system definitely calls for a very severe process of elimination, and any man that cannot reach the high standard set is to be thrown out.

The object of the system is to transform every factory and workshop into an industrial speedway.

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### The Golden Rule Policy the Best

Should an employee always obey orders without regard to consequences? If he does, there is no reason why he should be reprimanded for it, even if the result is disastrous from the employer's point of view. At the same time, there are cases where disobedience showed better judgment, because conditions arose that were not forseen by the party who issued the original orders. Spiteful employees sometimes take delight in executing orders which they know are wrong, because it gives them a chance to "get even" with a despised superintendent or foreman, when results are not satisfactory and he can blame nobody but himself. But such a triumph is always short-lived, however, and affords little satisfaction and of an inferior kind.

The golden policy prompts an employe to point out the possible result of mistaken orders, provided it is done in a wise and conservative manner, and, if such a course does not disarm a belligerent and disagreeable foreman, especially if there is a chance to repeat it, he certainly is much worse than the average. Let the employe honestly ask himself the question, "How would I like to have him do, if we should change places "

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When steel becomes rusty rub it with a piece of emery paper that has been dipped in turpentine. Polish with a fresh piece of emery paper and you will be delighted with the result.

# Noticed on the Editor's Travels

## Getting Full Duty From Sandpaper

I was in a mill the other day and noticed a man at the sander running through a lot of trim. Most of the hardwoods were represented, but Georgia pine seemed to predominate, and when a length was uncovered it was laid aside to be run last. There is no need to say that this man's work was—well, just right. And so would yours be if you would use the same discrimination.

Georgia pine is mighty hard on the paper and it is a good practice to run it as close to the end of rolls as possible, this will leave the paper in the centre nice and clean and free of pitch so that a smooth finish can be made on the hardwoods as well as the soft woods such as white pine, cypress, etc.

## Trouble with a Planer

About 16 months ago I sent a 24-in. panel planer to a local engineer to have new gun-metal bearings made and fitted in. In due course she came back with two nice long bearings (also a nice long bill), to all appearances well made and finished. I was congratulating myself that my troubles were now over (she had been cutting it **rough** previously), and that we would get better work out of her. Alas, our expectations were not realized; we simply could not get smooth work out of her for any length of time. Every few days I had to fit down the bearings, which wore away in an alarming manner. I would make a nice snug fit, so that the cylinder would just revolve freely, and start her up once more. She would run cool and do fine work for a few days and become as bad as ever again. This sort of thing occurred with unfailing and irritating regularity for just one year. It bested me every time. I could not improve matters one whit; try as I might, I could not locate the trouble. As may be expected, the bushes were now very much the worse for wear and wore a worried look (so also did the writer). Something had to be did very soon, so I decided to scrap the bushes and run in babbit metal in place of gun-metal. That "did" it. Ten pounds of babbit and seven hours' hard work made all the difference in the world to that old planer; to-day she is doing better work than she has done for two years, with less attention and less lubrication. Why? I shall not attempt to explain, because I do not know. The machine in question runs at 3,000 revs. with a feed of 15 ft. per minute. The work is exceptionally hard and heavy, being hardwoods of varying thicknesses, yet the finish is very good.

Now, why is it that babbit metal should prove superior to good, well-made gun-metal bearings, which cost about eight times as much money?

Babbit Metal.

## The Ontario Show Case Company, Toronto, Are Enlarging Plant

The above company's business has grown to such an extent that it has become necessary to acquire more space. This is being done by excavating for a basement under the present shop. This will enable the firm to install more machinery, which will be of the latest and most approved to be had.

The firm are already known as manufacturers of office and store fittings, show cases, etc., and when the new additions are made they intend going more extensively into this class of work.

## Geo. Walter & Company, Belleville

The firm of Geo. Walter & Company report as having done a very large business during the past summer, and the indication all points to a continuation of the same pleasing and desirable trade condition.

This company not only do a large local business, but ship to many outside points, sash, doors and blinds, flooring, sheeting, etc. Also stair and grill work.

## Pringle & Company, Belleville

This firm are well up in the front rank among Onstria sash, door and blind manufacturers, and are also well and favorably known to contractors requiring high-class stair work, interior trim, etc., both in pine and hardwoods.

An index of the firm's popularity is afforded by the fact that this season their contracts have been to supply all the sash, doors, interior trim, stair work and in fact all the mill work that entered into the construction of such fine buildings as the Masonic Hall, Toronto, Appleby Boy's School, Oakville. The East Canada Power & Pulp Co. building, Murray Bay, Que., is another big job they have in hand.

These are only a few of the many large orders this firm have either finished or are working on, but it serves the purpose of showing to some extent, at least, the field covered.

With the use of modern swages the filer may lose some of that skill of hand developed in the old days of hammer and upset swages, but he will get greater uniformity of shape in saw teeth and save time generally. So there is no loss to mourn over.

While the thin-knife question is being agitated the thin-saw question is getting a rest.

## Told to Me the Other Day

A rather simple-looking lad halted before a blacksmith's shop on his way home from school and eyed the doings of the proprietor with much interest.

The brawny smith, dissatisfied with the boy's curiosity, held a piece of red-hot iron suddenly under the youngster's nose, hoping to make him beat a hasty retreat.

"If you'll give me half a dollar I'll lick it," said the lad.

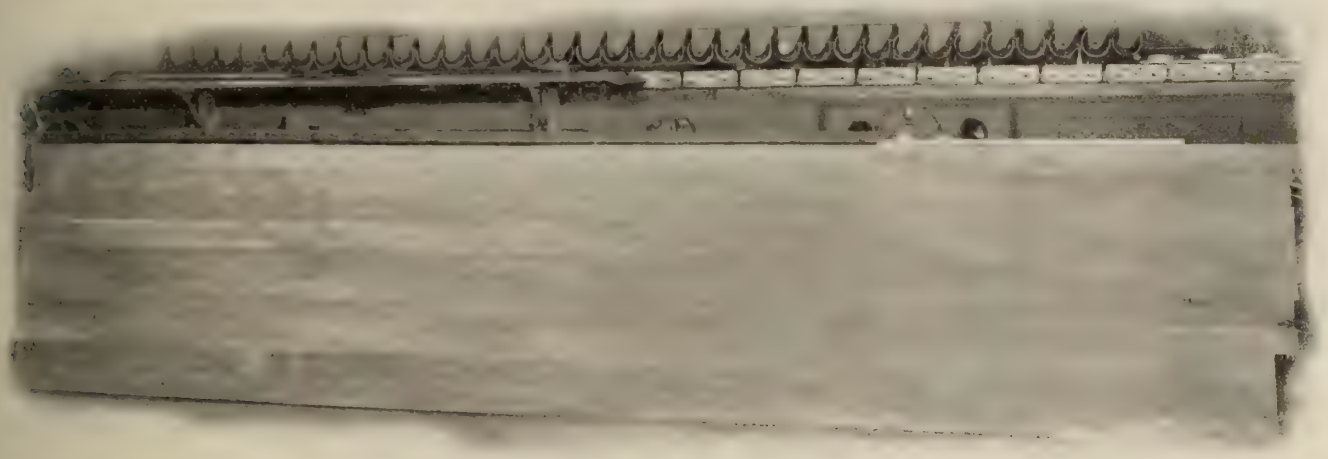
The smith took from his pocket half a dollar and held it out.

The simple-looking youngster took the coin, licked it, dropped it in his pocket and slowly walked away whistling.

# Making Narrow Lumber Wide

To anyone acquainted with the actual working of the Linderman Automatic Dovetail Glue Jointer, the title of this article, namely "Making Narrow Lumber Wide," has no real significance, yet to-day there are hundreds of Linderman machines running in all parts of the world, doing this successfully, day in and day out.

The illustration shown is a panel that is thirteen feet long, forty inches wide, by two inches thick, composed entirely of two-inch elm that was as crooked and warped as could be found. This panel was put together in testing out the first fourteen foot 1911 Linderman model built. Some of the lumber had a curvature along the edge of over one and a half inches, but with the use of the compressed air side roller pressure, the plank was forced against the gauge rigidly holding it firmly, while the dovetail was being cut and slid into the groove of the piece coming from the opposite end of the machine. It is not the intention to give the idea that an elm panel forty inches thick, built up in this manner, would be for all purposes as good as a one piece plank, could it be procured, of these dimensions, for the reason that the curvatures which were pressed out of the lumber were too great to give positive assurance of a permanent joint, which would not open, should it be sawed into smaller pieces and given a chance to spring back into its normal shape, but it is possible, and is done every day by a large number of manufacturers, to build up panels or boards of any dimension, from narrow stock, making them better in every way, than the wide lumber.



For box shooks, partitions, shelving, sheathing, etc., you can take your narrow lumber, even if it is waney and crooked, build it up into ten, twelve, fourteen, sixteen inches, or wider boards, and secure a product that is equal to the wide lumber, and yet many dollars cheaper. On the more valuable woods, to be used in interior trim, furniture, etc., the edges of the lumber should be very nearly straight, and if the lumber is waney, it should be surfaced at least on one side, in order to break the case hardened surface to allow the pressure rolls on the machine, to straighten it the more easily.

Aside from the economic benefit of joining up narrow lumber into wide, there is less danger of such a composite piece checking, and it will retain its shape better, so that the product is better than the wide lumber, from every standpoint.

There is a Linderman machine built to work any desired length from three feet up to sixteen feet, and the largest machine will work down to the smallest piece, namely eight inches in length. In the box factories where the machines are used they are working on the lowest grade lumber procurable, and in many of the furniture factories, the identically same machine is making the finest joint ever obtained in mahogany and other valuable woods.

The cost of making narrow lumber wide varies according to the different conditions. From fifty cents to $1.25 per thousand board feet, assuming that there is not more than three joints or four pieces to the foot. Even by the use of the latest improved machines, in scientifically run factories, where the cost is reduced to the lowest minimum, it is not possible to join lumber in any other manner, less than $2.00 and frequently it runs to double this amount per thousand board feet.

The Linderman Automatic Dovetailer is built in Woodstock, Ont., and anyone interested is invited to call and inspect the machines in operation. If you will send samples of your stock to the Canadian Linderman Company, Limited, they will be glad to joint it up for you, so you can have an actual sample of your own line, joined for criticism and testing purposes.

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### Thomas Organs Popular

The Thomas Organ and Piano Company, of Woodstock, report that July, last, was the "best July" they have had for some years. On account of the numerous orders they were called upon to fill during the past month or two, their stock on hand has become lower than usual, and they are busily engaged in an endeavor to get "ahead of their orders."

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The Karn-Morris Piano and Organ Company, Ltd., report business in pipe organs usually good. Their men are now installing a pipe organ in one of the churches in each of the following places: Vancouver, Halifax and St. Emilie, Que.

# Canadian Forestry Statistics

### Lumber Used by Furniture and Car Manufacturers in Canada, 1910

Statistics of the lumber purchased by furniture and car manufacturers in Canada in 1910 have been compiled by the Forestry Branch of the Department of the Interior; 117,893,000 board feet of timber were used, worth $2,987,210, at an average value of $25.35 per thousand; of this 65 per cent. was native wood at $20.82 per thousand, while the imported wood cost $33.86 per thousand. Ontario was the principal consumer, using over 50 per cent. of the total amount. About one-third was used in Quebec and the remaining 15 per cent. was consumed in Nova Scotia, Prince Edward Island used a negligible quantity. The timber in Ontario, both native and imported, was more expensive than in the other provinces, while Nova Scotia is a particularly chep lumber province.

Yellow pine and oak are the most important species used by these industries, forming over one-third of the total consumption. It is regretable that all of the yellow pine and 95 per cent. of the oak has to be imported from the United States. Great credit will be due to any manufacturer who supplants these two species with native wood. However, the next ten species in importance, maple, birch, spruce, pine, basswood, elm, ash, beech, Douglas fir, and hemlock, are native woods and practically make up the remaining two-thirds of total consumption. Thirteen other species are used in small quantities. Statistics of various industries thus collected are expected to be a benefit to private owner, timber seller and manufacturer, by giving a better understanding of volume of business

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### Mining Timbers Used in Canada, 1910

Mines to the number of 136 use considerable quantities of timber annually in their operations. Statistics of the amount used have been collected by the Forestry Branch of the Department of the Interior. Round (unsawn) timber was used to the extent of 52,848,000 lineal feet and cost an average of $9.90 per thousand. 22,305,000 board feet of sawn lumber and timber were used worth $13.63 per thousand. The total quantity of timber used cost $827,337. The round timbers varied in diameter from three to thirty-six inches and were used mostly underground as mine supports to give artificial support for insecure roofs and walls and to protect shafts, drifts and gangways. Ordinary lumber constituted most of the sawn timber and was used above ground for buildings, breakers, tipples, washers and trestles. Below ground the sawn timber enters into the ventilator shafts and sets. Thirteen different species of wood were reported from the mininm industries. Mines use species of wood which are abundant, cheap and easily obtained from nearby localities. Thus, in each province certain species were used to the exclusion of all others. British Columbia used all the fir; Nova Scotia used all the spruce, balsam and hemlock; Alberta used all the jack-pine, larch and poplar. These three provinces contain the principal coal mines and consume over 95 per cent. of Canadian mining timbers. The ore mines of Ontario, although many in number, used only one per cent. of the total. These mines are small, shallow and in the solid rock, so that little timber was required for supports.

### Cross-Ties Purchased, 1910

The Forestry Branch of the Department of the Interior has collected statistics with regard to the cross-tie consumption in Canada for 1910.

There were 9,213,962 criss-ties purchased in 1910 by the steam and electric roads of Canada at a cost of $3,535,228. This is a decrease of 35 per cent. from the number purchased in 1909. The average cost of these ties at the point of purchase was 38 cents per tie. Three kinds of wood, cedar, jack pine and hemlock furnished 77 per cent. of all the ties purchased. Cedar itself supplied 40 per cent. of the total consumption and its use is increasing yearly in proportion to other species. Oak, which makes an expensive tie, costing 74 cents each, was used principally by a United States company having mileage in Canada. Of the total number of ties purchased, 70 per cent. were hewn ties. The only important species which has a majority of sawn ties was oak. Sawn ties cost on the average 36 cents per tie and hewn ties cost three cents more. The steam railways used 95 per cent. of all the ties and these ties cost them on the average 38 cents. The electric railways used 302,540 ties—an increase of 183 per cent. over 1909. They paid for their ties 41 cents each. Although on the average they use smaller ties, this excess of three cents in the cost is due not only to the disadvantages incident to contracts for smaller quantities of materials, but also to the fact that the electrical roads are more likely to purchase ties at points where the price includes transportation charges.

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### Canada's Consumption of Timber

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Statistics of various industries thus collected are expected to be a benefit to private owner, timber seller and manufacturer by giving a better understanding of volume of business done, value of species and market.

### Defoliation of Forests by the Spruce Budworm

Considerable uneasiness, and even alarm, has been felt by lumbermen and others interested in forest products, over the depredation in different parts of Canada, of the spruce budworm (Tortrix fumiferana). It was feared that the spruce might suffer a fate similar to that of the tamarack which was killed by the larch sawfly about twenty-five years ago. As a result, however, of careful investigations begun by the Division of Entomology of the Dominion Department of Agriculture during 1909 and still in progress, the situation appears to be much more satisfactory and reassuring than was at first considered possible.

The destructive work of the budworm was first reported two years ago from Vancouver Island, where the Douglas fir was attacked; and from Quebec, where the spruce and the balsam suffered chiefly. In the case of Quebec, the pests were at first confined to the west-central portion of the Province, but during 1910 areas on the east of the St. Lawrence were also attacked. It was this latter circumstance that roused timber owners to a sense of the possible extent of the danger.

While in the caterpillar stage these insects destroy the buds of the spruce and balsam, especially at the tops of the trees. They also bite off the leaves, together with the excrement of the caterpillars, cause the tope of the trees to assume a reddish brown appearance. When a large area is attacked it appears as if it had been swept by fire.

As such plagues of air insects can only be controlled by uatural means, the Dominion Entomologist visited a number of the infected districts for the yurpose of discovering a natural remedy that would meet the situation. Various insect enemies or parasites were found, that prey upon the budworm, and these are being used to destroy the pest. As the percentage of important parasites, especially of the minute species which attack the eggs of the budworm, is unusually large, there is abundant reason for hoping for the extermination of the latter. Judging by previous experiences instudies of this nature, it is not improbable that the nsect will be controlled by its natural parasites in the course of a year or two, that is, before it has inflicted any serious damage to the spruce and balsam by repeated defoliation.

### New Incorporations

The International Lumber Company, Limited, with head office at Moose Jaw, has been incorporated. Capital $250,000. Number of shares 2,500.


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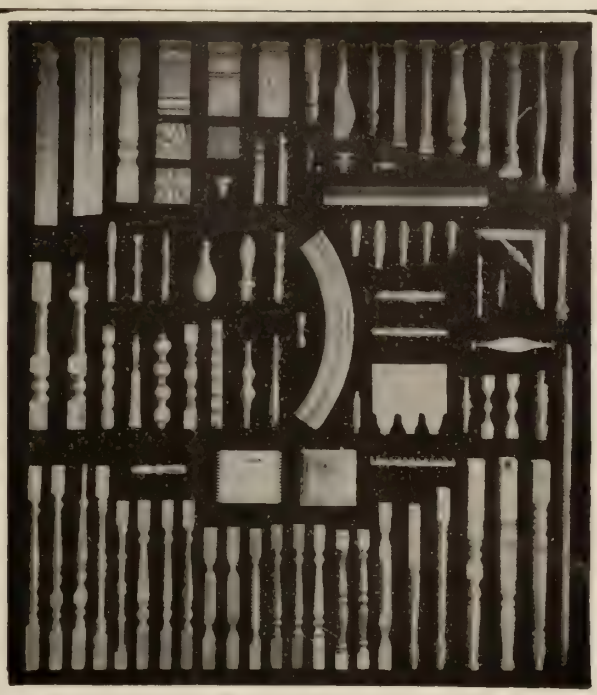

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# From Coast to Coast

### Well-known Lumberman Passes Away at Huntsville

The death occurred at Huntsville, Ont., of Mr. John Whiteside, one of the best known lumbermen in Ontario. Mr. Whiteside was taken ill last winter, and has never been able to overcome the severe attack of grippe which took hold of him at that time.

Mr. Whiteside came to Huntsville in 1883, and shortly after his arrival, purchased Ambler's mill, which was later burned. He secured control of large timber interests, and although twice his milling plant was destroyed, he never lost courage, but in re-erecting always did so on a larger scale. For some years also he conducted a large general store in Huntsville.

At the time of his death he was operating his large sawmill on River street.

### Strathroy Man Succumbs to Blow From Board

John McAdory, a well-known resident of Strathroy, Ont., died as a result of an accident that he met with at the Strathroy Furniture Company's factory recently. He started at work operating a rip-saw on Saturday morning, and a portion of the third board he handled was thrown against the man's abdomen. The internal injuries caused death.

### Population of Hamilton 82,095

The official returns made public recently give Hamilton a population of 82,095, an increase of 8,457 over last year, the largest in the city's history. The rapidly growing industrial district in the far east end furnished the largest increase. The fact that it has only taken two years to get from 70,000 to 82,000, makes the Hamilton "boosters" hopeful that the hundred thousand mark will be reached within the next two years.

### The Fir Trees of the Pacific

"Next to the big tree of California, or sequoia, as it is termed by the scientists, the fir as found in Washington, Oregon and British Columbia, has the largest diameter of any tree in America, and probably in the world. Some have been cut down which actually measured 15 feet in diameter at the point where the incision was made. As they decay very rapidly after the timber has been removed, usually the interior can be hollowed out with little difficulty. Sometimes they are used for dancing platforms—some being large enough to accommodate four couples."

During a severe electric storm a sawmill owned by T. B. Chalk at Bewdley, at the head of Rice Lake, was struck by lightning and totally destroyed, with all the machinery. Several piles of lumber were also burned. There was no insurance and Mr. Chalk's loss is consequently heavy.

### Royal City Building Permits Increase

The total building permits issued in the city of New Westminster, B.C., for the month of September amounted to a total of $101,035, being a little less than the total for the preceding month. The last week in September, however, exceeded the last week in August by about $5,500, the total for the week being $48,175, against $43,810 for the corresponding week.

### 14,000,000 Power Plant Started at Winnipeg

In the presence of Controller Cockburn, father of Winnipeg's power plant and member of the city council, members of the Electric Energy Company turned on at Winnipeg the four million dollar power plant at Point Du Bois. The sixty thousand horse power will be developed form the rushing waters of the Winnipeg river by Christmas and transmitted seventy miles to this city. Of this, the C. P. R. shops take twenty thousand.

### New Shops for Calgary

At the annual meeting held in Montreal of the Canadian Pacific Railway Board of Directors it was decided to place the new western shops at Calgary, Alberta. This marks the end of a long fight by a number of western cities.

### The Amount of Wood Required to Make One Ton of News Paper

Hardy S. Ferguson, who was chief engineer of the Great Northern Paper Company for many years, but is now a consulting engineer at 200 Fifth Avenue, New York, gives the following figures as to the amount of wood required to make one ton of news paper:

**Assumptions—**

1. One cord of wood will yield 1 ton air dry ground wood pulp.
2. Two cord of wood will yield 1 ton air dry sulphite pulp.
3. In the paper mill 2 per cent. of the sulphite is wasted.
4. In the paper mill 8 per cent. of the ground wood is wasted.

(a) Paper containing 25 per cent. sulphite.
1 ton paper requires—25/98x2 plus 75/92x1 equals 1.32 cords.

(b) Paper containing 22½ per cent. sulphite.
1 ton paper requires—22.5/98x2 plus 77.5/98x1 equals 1.30 cords.

(c) Paper containing 20 per cent. sulphite.
1 ton paper requires—20/98x2 plus 89/98x1 equals 1.28 cords.

### A Well Known Lumber Man Passes Away After a Brief Illness

Controller James Davidson, probably the best known of Ottawa's civic fathers, died on Saturday at his apartments in the Hotel Cecil after an illness lasting only two weeks. He was seized with acute indigestion on Saturday, September 23rd. Deceased was one of the best known lumbermen in the capital, and had business connections throughout Canada, the United States and Great Britain. He operated a large mill here for many years. He served as Alderman in the City Council, was chosen Mayor in 1901 to fill out the balance of the term of Mayor Morris when that official was disqualified, and on the establish-

ment of the Board of Control he was elected to that body, having returned every year since.

### The Nova Scotia Car Works are Duplicating Power Plant

Owing to the rapid increase of business since taking over the Silliker plant, the Nova Scotia Car Works, Halifax, has found it necessary to duplicate its power plant. The original plant was supplied by the Robb Engineering Company, South Framingham, Mass., and the duplicate order has been placed with the same concern. The new installation will consist of a 600 horse power Corliss engine for direct connection to electric generator, three 200 horse power return tubular boilers with self-supporting steel smoke stack five feet diameter, ninety feet high, also feed-water heater, piping and other accessories.

### Falling Timber Bruised His Foot

While engaged at his duties as a member of the C. P. R. bridge and building department N. Parry, of Fort William, had his right instep badly bruised by a piece of timber .

### Shingle Mill Destroyed by Fire

Fire last night destroyed the shingle mill belonging to Turnbull Munroe at Ferryville, N.B. The fire is supposed to have started around the boiler, and very soon enveloped the whole structure.

## CRUSHED TO DEATH BY LOGS

### Toronto Man Dies in Parry Sound Hospital

As the result of injuries received in the camp of the Hocken Lumber Company at Otter Lake, Joseph Patenote, the superintendent of the company, died in St. Joseph's Hospital, Parry Sound. The man was superintending the moving of some logs that had been stalled, and when the tug started to move them they flew to the bank and struck deceased. He was hurried to the hospital, but his injuries were such that he could not recover. The man lived at 222 Wellesley street, Toronto.

### Saw Mill Burned

During a storm recently the sawmill at Bewdley, Ont., owned by John Smith, was struck by lightning and burned to the ground.

## FACTORY FOR GUELPH

### Casket Company May Take Over Building on Terms

The Guelph City Council has approved of the offer of the Dominion Casket Company to purchase the entire factory of the Canada Furniture Company, Yorkshire street, and to employ at least seventy-five hands in operating the same, on condition that the city loan the company $25,000 on a first mortgage on the entire plant and grant a fixed assessment of $5,000 per annum for ten years, the loan to bear interest at 4½ per cent., payable half-yearly, and the principal to be repaid in twenty equal annual instalments.

The Laidlaw Lumber Company, Sarnia, Ont., has bought out the planing mill and lumber business of W. F. Lawrence & Son.

Fire, believed to have been of an incendiary origin, completely destroyed the small planing mill of the Avey, McLaughlin Lumber Company, Brantford, Ont. The loss will be about $2,000, covered by insurance.

## BIG LUMBERMAN DEAD

### David Jardine, of New Brunswick, Passes Away in Liverpool

A private cablegram from Liverpool announces the death of David Jardine, of the shipping and lumber firm of Farnworth & Jardine, and a former New Brunswicker, at the age of 84. The firm at present controls the Alex. Gibson Railway Company and lumber properties in New Brunswick.

### Hamilton's Building Record

The building statistics for September were given out to-day, and they show an increase over the corresponding month of last year of $504,725, the total being $711,200. Building Inspector Anderson estimates that the total for the year will be near the $5,000,000 mark, and it is certain to be the largest in the city's history. September's figures break all former records.

Lumberjacks are leaving Fort William for the fall and winter bush work. A large party went to Channel, near Nepigon, where they will be employed by the Northern Islands Pulpwood Company.

A. C. Stewart, of the firm of A. C. Stewart & Company, contractors, of Fort William, left for a brief business trip to Winnipeg.

### Had His Hand Gashed in a Circular Saw

Joseph Hilliken, aged 20, an employe of the Downer Pattern Works, 116 Adelaide street west, Toronto, had one of his fingers cut off and his hand badly cut in the circular saw which he was operating. Hilliken was doing some fine work with the saw when his hand slipped. The second finger was cut off just above the knuckle, and the third and fourth fingers were badly scraped and cut.

### Two Millions of English Capital Secured for Vancouver Project

Vancouver.—It is understood that $2,000,000 of English capital have been secured for the extension of the business of Messrs. E. H. Heaps & Co., Ltd., lumber manufacturers of this city. This result, after full investigation of the possibilities of the enterprise, followed Mr. Heaps' visit to London.

The company has now in operation a sawmill, planing mill and sash and door factory on its waterfront site on Burrard Inlet in the east end of this city. New mills of the same character, but of much greater capacity, will be erected alongside the existing plants. The sawmill will have a total capacity of 300,000,000 feet per annum. Plans of the proposed additions are now being prepared, and construction work will be started very shortly. The plants will represent the latest ideas in sawmill practice.

Arrangements have also been completed for the erection on the same site of modern machine shops

for the manufacture of internal combustion engines, motor cars, taxicabs, commercial trucks and motor fire apparatus. The machinery for this portion of the enterprise will be imported from England.

### New Mill at Ruskin

The programme of improvements also includes the erection of a sawmill plant at Ruskin at the mouth of Stave River, near the main line of the C. P. R., to replace the company's sawmill partially destroyed by fire last year. There will also be a new sawmill and a planing mill. The plant will have the same capacity as the proposed new plant in Vancouver, giving them a joint annual output of 60,000,000 feet. Construction work will start simultaneously with that in this city and one year hence will see the new enterprise in operation. Meantime, the Vancouver mill will continue to run full blast.

### Nelson Building Permits

Nelson, October.—Aggregating $20,620, the building permits for last month showed an increase over those of the same month last year, which is probably a record in the history of Nelson, the percentage of increase being 750. The total for September, 1910, was $2,425. For the year to date the increase is about $50,000 over the figures for the same period last year, which were $89,730.

### May Move to Guelph

Guelph.—The Taylor-Scott Company of Toronto will likely move to this city, where they will establish a woodenware factory. A number of lots in St. Patrick's Ward were placed on sale and the proceeds will be used to assist them. Word was received to-day that they were prepared to ask for tenders for their building as soon as the one hundred and twenty-five lots were disposed of. If possible they will ask for tenders next week. The Subscription Committee will make a special effort to dispose of the remaining lots by Monday night.

### Foster-Armstrong Piano Co. Unable to Make Extension at Berlin

Berlin, Ont.—Owing to lack of building accommodation it is probable that Berlin may lose the Foster-Armstrong Piano Company's factory in January. The company purposes moving its plant to Toronto. Additional room is required, but the vacant land in the rear of the factory is by the Merchants' Rubber Company, which proposes erecting an addition on it this winter, thus making it impossible for the piano company to extend. The Board of Trade will endeavor to keep the concern here.

### St. John's

An employee of the Christie Woodworking Company, named Gilbert Crawford, had his right hand amputated by a large rip saw while at work this morning.

### Factory Inspector Abroad

James T. Burke, of Toronto, chief factory inspector for Ontario, has been in Chicago at the convention attended by about five hundred factory inspectors from all over the continent. The convention was devoted chiefly to stereoptican views and lectures on safety devices for dangerous machinery, sanitation in factories, first relief for injured, etc., and the proceedings were most valuable and instructive. Mr. Burke also visited Lincoln, Neb., attending the International Association of Factory Inspectors, lasting four days.

### New Building for Russell Motor Car Co. at West Toronto

Ground is to be broken at once on a $30,000 addition to the plant of the Russell Motor Car Company in West Toronto. The building will be of modern construction throughout and furnished with the latest equipment. The work of construction is to be pushed rapidly, in order to have the building roofed in before snow flies.

This is the second recent addition to the Russell plant, a large factory having been completed during the past year. The growth of the company's business hos been so fast, however, that another building has become necessary.

### Western Association to Fight Encroachments of American Mills

Calgary, Alta.—Far-reaching changes were decided on at the conference held in Calgary over week-end by the members of the Coast Mountain Lumbermen's Association. It was decided among the members that they should close down a large number of their mills this coming season and in some of the mountain mills not a wheel will turn until 1913. Horses are to be sold off, camp will be abandoned and generally the lumbermen will mark time for about a year.

Another important change which was agreed upon was that the lumber at present in stock in the various mills will be sold through one office, to be located at Calgary.

The trade for the past year has been somewhat annoyed by the encroachment of the American mills. It was decided at the meeting Saturday to meet all cuts that the Americans might make and put them out of business at all costs. In the meantime an effort will be made to have the government put a duty on American lumber that will give protection in the rough lines of lumber in which Canadians have to meet the keenest competition at present.

As a result of the placing of the lumber from one office alone there will be nearly 200 lumber travellers out of employment.

The
**Elgie & Jarvis Lumber Co.**
Limited
**Wholesale Lumber**
**Pine, Spruce, Hemlock and Lath**
**18 Toronto Street :: :: TORONTO**
Wire or phone inquiries at our expense

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AUTOMATIC DOVETAIL GLUE JOINTER
Canadian Linderman Machine Co., Ltd., Woodstock, Ont.

BABBITT METALS.
Shurly Dietrich Co., Ltd., Galt, Ont.
Fay & Egan Co., Cincinnati, O.
Canada Metal Co., Ltd., Toronto.

BALUSTER LATHES.
C. Mattison Machine Works, Beliot, Wis.
Ober Mfg. Co., Chagrin Falls, O.
Baxter D. Whitney & Son, Winchendon, Mass.

BAND SAW FILING MACHINERY.
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
Shurly Dietrich Co., Ltd., Galt, Ont.
Fay & Egan Co., Cincinnati, Ohio.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

BAND SAWS.
Shurly Dietrich Co., Ltd., Galt, Ont.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
R. H. Smith Co., Ltd., St. Catharines, Ont.

BAND SAW MACHINERY.
Mussens, Ltd., Montreal.
Canada Machinery Agency, Montreal.
Berlin Machine Works, Ltd., Hamilton, Ont.
Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

BAND SAW MILLS.
Berlin Machine Works, Ltd., Hamilton. Ont.
Canada Machinery Agency, Monteral.
Mussens, Ltd., Montreal.
Fay & Egan Co., Cincinnati, O.

BAND SAW STRETCHERS.
Fay & Egan Co., Cincinnati, O.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

BENDING MACHINES.
Mussens, Ltd., Montreal.
Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.

BELTING.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Sadler & Haworth, Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
H. W. Petrie, Ltd., Toronto.

BELTS (Endless).
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Sadler & Haworth, Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt.
H. W. Petrie, Ltd., Toronto.

BELT CEMENT.
Sadler & Haworth, Montreal.

BELT FASTENERS.
Sadler & Haworth, Montreal.

BELT DRESSING.
Sadler & Haworth, Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt.

BLOWERS.
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
Sheldons, Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

BLOW PIPING.
Sheldons, Ltd., Galt, Ont.

BOILERS.
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

BORING MACHINES.
Canada Agency Montreal.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal
J. M. Nash, Milwaukee, Wis.
Valley City Machine Works, Grand Rapids, Mich.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

BOX MAKERS' MACHINERY.
Canadian Linderman Co., Ltd.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Baxter D. Whitney & Son, Winchendon, Mass.
C & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

BROKEN CASTINGS BRAZED — MACHINIST AND DIE MAKER.
W. H. Dunn, 1892 Queen St. West, Toronto

CABINET PLANERS.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Valley City Machine Works, Grand Rapids Mich.
Baxter D. Whitney & Son, Winchendon. Mass.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

CARS (transfer).
Sheldons, Ltd., Galt, Ont.

CARVING MACHINES.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler Ont.
Valley City Machien Works, Grand Rapids. Mich.

CHISELS.
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.

CIRCULAR SAW MILLS.
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

CHAINS (Silent).
Jones & Glassco, Montreal.

CLAMPS (Chain, Carpenter, Cabinet, Pattern Makers, Bench, Mitre, Piling, Mounted and Rotary Wheel).
Black Bros. Machinery Co., Mindota, Ill.
J. A. Fay & Egan Co., Cincinnati, O.

CLAMPS (Saw).
Shurly Dietrich Co., Ltd., Galt, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

CLUTCHES.
J. A. Fay & Egan Co., Cincinnati, O.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

COLUMN CLAMPS.
Black Bros. Machinery Co., Mendota, Ill.

COLUMN MACHINERY.
J. A. Fay & Egan Co., Cincinnati, O.
C. Mattison Machine Works, Beloit, Wis.

CORE BOX MACHINES.
J. A. Fay & Egan Co., Cincinnati, O.
E. & B. Holmes Machinery Co., Buffalo, N.Y.

CUT-OFF SAWS.
Shurly Dietrich Co., Ltd., Galt, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
Simonds Canada Saw Co., Montreal.
R. H. Smith C., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

CUTTER HEADS.
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Samuel J. Shimer & Sons, Mitton, Pa.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

DADO HEADS.
C. Mattison Machine Works, Beloit, Wis.

DIEMAKERS & MACHINISTS
W. H. Dunne, Toronto.

DISK GRINDERS.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.

DOGS (Saw Mill).
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.

DOVETAILING MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canadian Linderman Machine Co. Ltd., Woodstock, Ont.
J. A. Fay & Egan Co., Cincinnati, O.

DOWEL MACHINES.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Valley City Machine Works, Grand Rapids, Mich.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

DRILLS (Automatic Hand).
North Bros. Mfg. Co., Philadelphia, Pa.

DRILLS (Reciprocating).
North Bros. Mfg. Co., Philadelphia, Pa.

DRILLS (Breast).
North Bros. Mfg. Co., Philadelphia, Pa.

DRYING MACHINERY.
Canada Machinery Agency, Montreal.
Sheldons, Ltd., Galt, Ont.

DRY KILNS.
Canada Machinery Agency, Montreal.
Sheldons, Ltd., Galt, Ont.

DUST COLLECTORS.
Canada Machinery Agency, Montreal.
Sheldons, Ltd., Galt, Ont.

DUST SEPARATORS.
Canada Machinery Agency, Montreal.
Sheldons, Ltd., Galt, Ont.

DYNAMOS.
Canada Machinery Agency, Montreal.

EDGERS (Gang).
Berlin Machinery Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
Simonds Canada Saw Co., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Fisher, Sander Co., Berlin, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

EDGERS (Single Saw).
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
Simonds Canada Saw Co., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

END MATCHING MACHINE.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler Ont

Mussens, Ltd., Montreal.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

ENGINES (Steam).
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

EXHAUST FANS.
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
Sheldons, Ltd., Galt, Ont.

FLOORING MACHINES.
Berlin Machine Works, Ltd., Hamilton.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler.
Mussens, Ltd., Montreal.
Samuel J. Shimer & Sons, Milton, Pa.
Baxter D. Whitney & Son, Winchendon, Mass.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

FLINT.
Wausau Quartz Co., Wausau.

FLUTING HEADS.
J. A. Fay & Egan Co. ,Cincinatti, O.

GAINING MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinatti, O.
C. Mattison Machine Works, Beliot, Wis.
Mussens, Ltd., Montreal.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie Co., Ltd., Toronto.

GAS ENGINES.
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
H. W. Petrie, Ltd., Toronto.

GAUGES (Saw).
Shurly Dietrich Co., Ltd., Galt, Ont.
Simonds Canada Saw Co., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

GEAR HOBBING MACHINE.
Reynolds Machine Co., Moline, Ill.

GLUE CLAMPS.
Black Bros. Machinery Co., Mendota, Ill.
H. W. Petrie, Ltd., Toronto.

GLUE HEATERS.
J. A. Fay & Egan Co., Cincinnati, O.

GLUE JOINTERS
Canadian Linderman Co., Ltd.

GLUE SPREADERS.
J. A. Fay & Egan Co., Cincinnati, O.

GRINDERS (Cutter).
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Falls Machine Co., Sheboygan Falls, Wis.

GRINDERS (Knife, etc.).
E. C. Atkins & Co., Hamilton, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
T. A. J. Burton Saw Co., Ltd., Vancouver, B.C.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

GRINDERS (Tool).
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Valley City Machine Works, Grand Rapids, Mich.

GROOVING HEADS.
E. C. Atkins & Co., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
C. Mattison Machine Works, Beloit, Wis.
Samuel J. Shimer & Sons, Milton, Pa.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

HAND PROTECTORS.
J. A. Fay & Egan Co., Cincinnati, O.
Jones Safety Device Co., Hamilton, Ont.

HAND SCREWS.
Black Bros. Machinery Co., Mendota, Ill.
J. A. Fay & Egan Co., Cincinnati, O.

HEATING APPARATUS.
Sheldons, Ltd., Galt, Ont.

HANDLE AND SPOKE MACHINERY.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
J. M. Nash, Milwaukee, Wis.
Ober Mfg. Co., Cragrin Falls, O.
Baxter D. Whitney & Son, Winchendon, Mass.

HUB MACHINERY.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.

INJECTORS.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

JOINTERS.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canadian Linderman Co., Ltd.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

KNIVES (Planers and Others).
Shurly Dietrich Co., Ltd., Galt, Ont.
E. C. Atkins & Co., Hamilton.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.
Samuel J. Shimer & Sons, Milton, Pa.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

LACE LEATHER.
Sadler & Haworth, Montreal.

LAST MACHINERY.
Canada Machinery Agency, Montreal.

LATHES (Pattern Makers').
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Valley City Machine Works, Grand Rapids Mich.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

LATHES (Turning).
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Haspeler, Ont.
C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Plessisville Foundry, Plessisville, Que.
Valley City Machine Works, Grand Rapids, Mich.
Baxter D. Whitney & Son, Winchendon, Mass.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

LOOSE PULLEYS.
J. A. Fay & Egan Co., Cincinatti, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

LUBRICANTS AND GREASES.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

MITRE MACHINES.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

MITRE SAWS.
Shurly Dietrich Co., Ltd., Galt, Ont.
E. C. Atkins & Co., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Simonds Canada Saw Co., Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo N.Y.
H. W. Petrie, Ltd., Toronto.

MITRE CLAMPS.
Black Bros. Machinery Co., Mendota, Ill.
H. W. Petrie, Ltd., Toronto.

MORTISING MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
Black Bros. Machinery Co., Mendota, Ill.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinatti, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Jones & Glass Co., Montreal.
Mussens, Ltd., Montreal.
Plessisville Foundry Co., Plessisville, Que.
Valley City Machine Works, Grand Rapids, Mich.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

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Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.

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Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
J. M. Nash, Milwaukee, Wis.

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J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Baxter D. Whitney & Son, Winchendon, Mass.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

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Hespeler Machinery Co., Ltd., Hespeler, Ont.

PLANES.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.

PLANERS.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Baxter D. Whitney & Son, Winchendon, Mass.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
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Canada Macihnery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Samuel J. Shimer & Sons, Milton, Pa.
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The Goldie & McCulloch Co., Ltd., Galt, Ont.
Black Bros. Machinery Co., Mendota, Ill.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie Co., Ltd., Toronto.

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Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinatti, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

QUARTZ.
Wausau Quartz Co., Wausau.

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Shurly Dietrich Co., Ltd., Galt, Ont.
E. C. Atkins & Co., Hamilton, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency Montreal.
Simonds Canada Saw Co., Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt.
R. H. Smith Co., Ltd., St. Catharines, Ont
J. A. Fay & Egan Co., Cincinatti, O.

Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

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Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
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Samuel J. Shimer & Sons, Milton, Pa.
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Plessisville Foundry, Plessisville, Que.

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Mussens, Ltd., Montreal.
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Plessisville Foundry, Plessisville, Que.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
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J. A. Fay & Egan Co., Cincinnati, O.
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Mussens, Ltd., Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver. B.C.
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J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
H. W. Petrie, Ltd., Toronto.

WAGON AND CARRIAGE MACHINERY.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Baxter D. Whitney & Son, Winchendon, Mass.

WOOD PULLEYS.
Canada Machinery Agency, Montreal.
Plessisville Foundry, Plessisville, Que.

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**Waterproof**

# Leather Belting

is made to do hard work in a wet place better than any other Belt. Let us prove it to you by sending a Belt on trial.

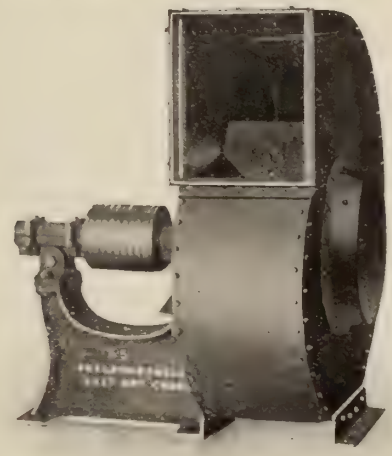
We always carry a full stock of all kinds of Leather Belting.

## Sadler & Haworth

**Montreal - Toronto**

**The New Slow Speed**

# Sheldon Exhaust Fan



**The Fan that is revolutionizing the Shaving Exhaust Business**

It will handle wet or dry, long or short shavings and sawdust, and will do this work with a guaranteed reduction in speed of from 25% to 40% less and with a power consumption of 20% to 35% less, than any other exhaust fan. The Casing is very similar to that formerly used, but the wheel is of an entirely different design.

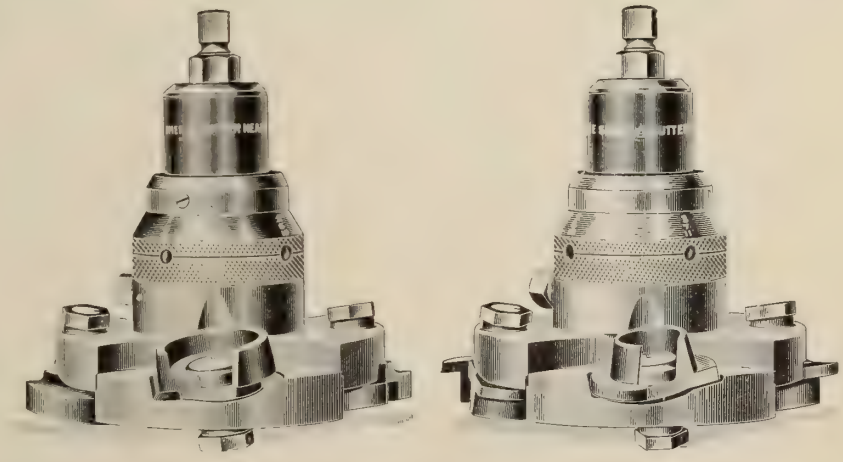
**Let us tell you more about it**

## SHELDONS LIMITED - Galt, Can.

## YOUR OUTPUT

**of Flooring, Ceiling and Siding can be improved and increased by adopting a**

## System of Shimer Cutter Heads



which systematize the work in planing mills and solve the problem of economical woodworking. They last long and cost little. Made of Steel Forgings of 60,000 lbs. tensile strength they represent the strongest combination possible to meet every emergency.

The illustrations herewith show the compact and workmanlike manner in which the Shimer Cutter Heads are constructed—how the vital principle of clearance is applied to all leading bit points—how the alternate and shearing effect of the cut reduces to a minimum the tearing out tendencies in working cross-grained lumber. A study of the illustrations will also show that the Bits have the exact shape in their exterior circles, insuring that a uniform product will be maintained indefinitely without extra trouble and expense.

Through the "make-ready" built into the Shimer Cutter Heads your workmen are relieved of the labor connected with filing and re-filing straight bits to pattern—the lining up of such knives and other needless worries.

**They are not an expense, but they save expense by giving you an easier and faster way of getting out your work.**

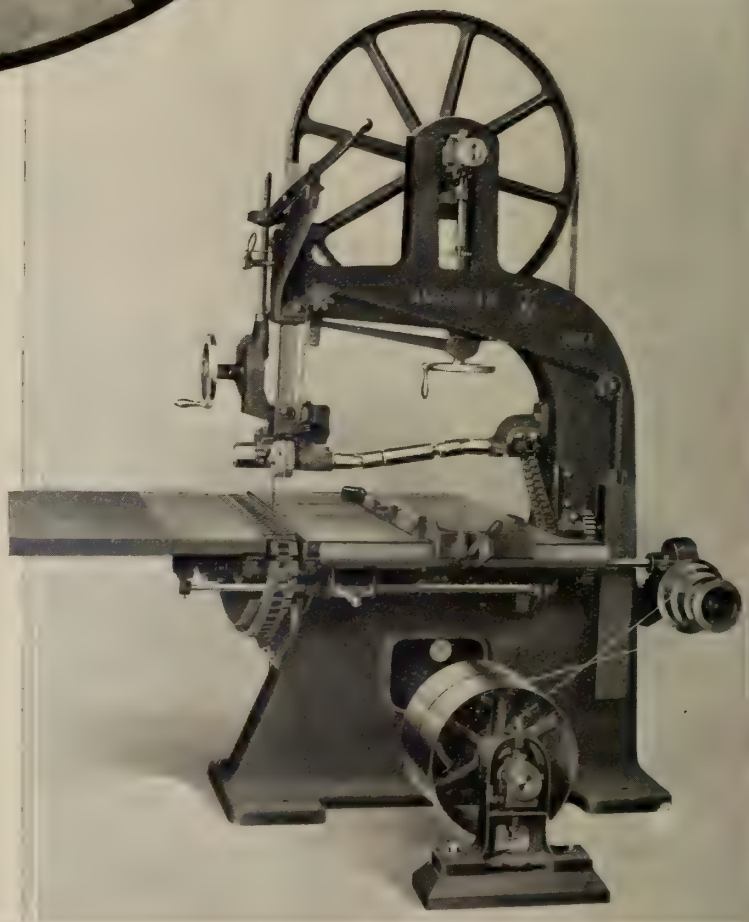
Send for Catalogue and Pattern Book showing the regular and special tools we make. The more intricate and difficult your patterns are to maintain the more time and labor our tools will save.

## Samuel J. Shimer & Sons,

**Branch of Milton, Pa.** **GALT, ONTARIO, CAN.**

# "SEE THAT CHAIN"

AMERICAN
FIRST IN
QUALITY



Is it stubborn, or will it lead?
Ours isn't stubborn; it will lead.
Lead where?
Why, to the guide, of course.

The bar on which the chain runs is pivoted at the back end and adjusts at the front end to "lead" over to or from the saw—*very essential as every operator knows.*

You can't get this adjustment on any other Combination Band Rip and Edging Saw.

*Not necessary to adjust chain below surface of table for ripping.*

We give you a lever (see it?) to control the feed—it isn't necessary for the operator to *kick off the belt* when he wants to stop the feed or *grab hold of a lever and jerk up the feed rolls.*

You want the best Band Rip and Edger—It's an *AMERICAN.*

## AMERICAN WOODWORKING MACHINERY CO

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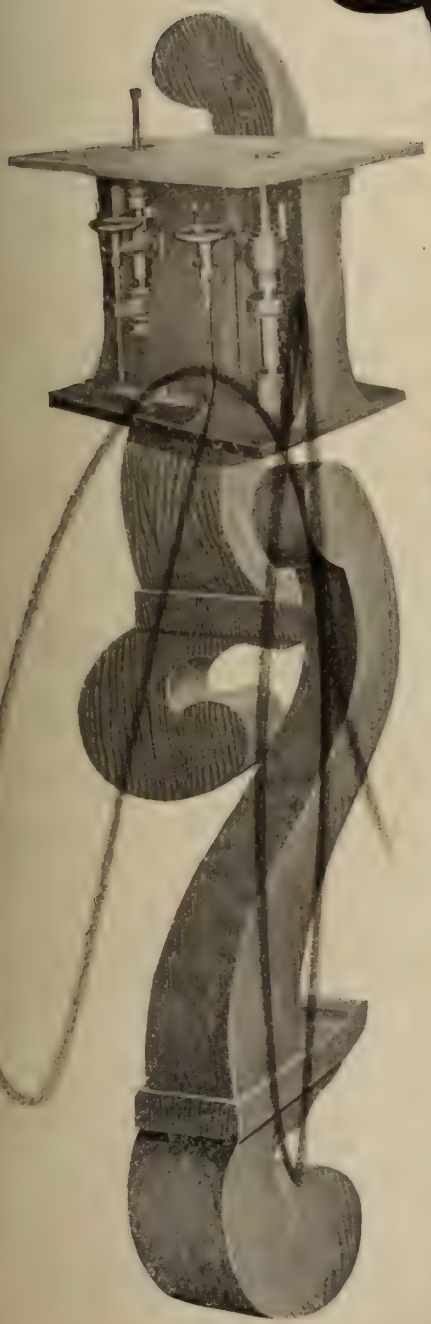
CANADIAN WOODWORKER

Toronto, November, 1911

# Whitney Shapers

NO vibration of the high speed spindles, and steady smooth cutting, are features which tend to bring edge shaping work done on a Whitney Shaper to that point which can be truthfully said to be as near to perfect edge shaping as it is possible to produce.

This kind of edge shaping is always desirable—it is the kind that cuts cost of production.

Whitney Shapers are made with either solid spindles or spindles with detachable heads—the latter makes the machine adaptable to a wider range, and you know what a wide range of variety work can be done on a Shaper—think of increasing it.

However, in any case you want the work to be done perfectly, and that's what Whitney Shapers do—perfect work.

No possible jar or vibration can alter the spindle adjustments on a Whitney Shaper. Moreover, the spindles, whether solid or detachable, always run true and keep cool when driven at the tremendous high speed all Whitney Shapers work under.

If you want a machine to do edge shaping as it ought to be done—get a Whitney.

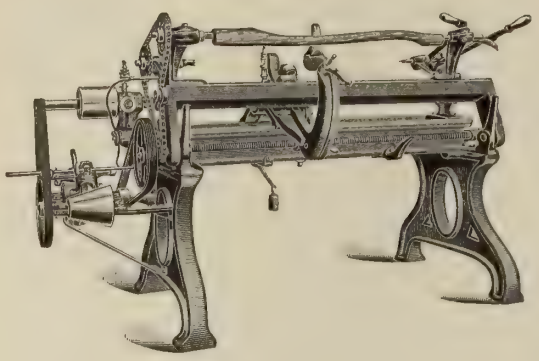
Write

**Baxter D. Whitney & Son**

**Winchendon, Mass.**

**Pacific Coast Sales Department, H. H. PLUMMER, Manager, Pacific Building, Seattle, Wash.**

**Henry Kelley & Co., 26 Pall Mall, Manchester, England**



This cut shows the No. 1 Lathe for turning Axe, Pick, Adze, Sledge, Hammer and Hatchet Handles, Spokes, Whiffletrees, Gun Stocks, Lasts, and other irregular work.

**Simple Strong Durable Economical**

We also manufacture other Lathes for making Handles, Spokes, and Variety Work; Sanders, Shapers, Boring and Chucking Machines, Rip Saws, etc., etc.

Complete Catalogue and Price List Free.

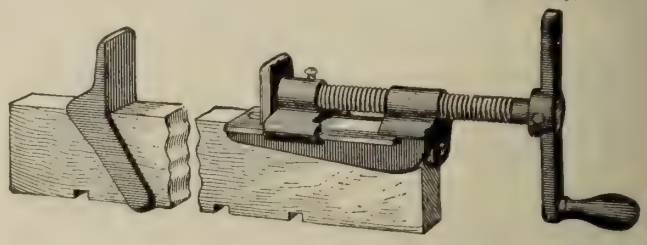
**The Ober Mfg. Co.**

**31 Bell St., CHAGRIN FALLS, Ohio., U. S. A.**

**Clamp Fixtures, Per Set, 50 Cents**

Gentlemen :—We are pleased to state that the 25 dozen Patent Malleable Clamp Fixtures which we bought of you a little over a year ago are giving excellent service. We are well satisfied with them and shall be pleased to remember you whenever we want anything additional in this line.

Yours truly, CURTIS SASH & DOOR CO.,
Sioux City, Iowa.



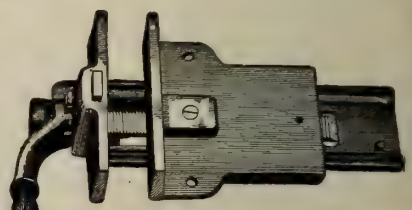
No. 1

STEEL BAR CLAMPS

The bars of our STEEL CLAMPS are especially tempered and guaranteed indestructable. Screws and fitting quickest possible action and made to stand any service or abuse. Don't fail to test sample of this clamp before you buy elsewhere.

**Over 26,000 of our Steel Rack Guaranteed Vices**

now in use. We solicit the privilege of submitting samples of these specialties on terms that will be attractive to rated firms. Write for list and prices.



RAPID-ACTING WOODWORKER'S VISE No. 3

**E. H. Sheldon & Co., 326 N. May St., Chicago, Ills.**

**Saves from $3 to $4 a day**

**That is what the**

**NASH SANDER HAS DONE**

on such work as

Chair Stock
Dowel Rods
Shade Rollers
Curtain Poles
Hoe, Fork, Rake, Broom and Shovel Handles
Whip Stocks
Flag Stocks
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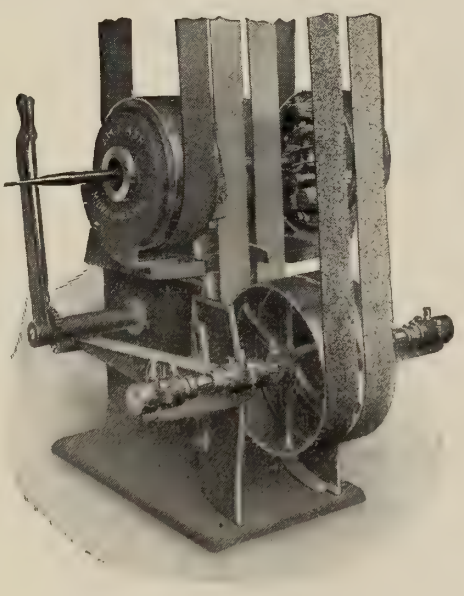
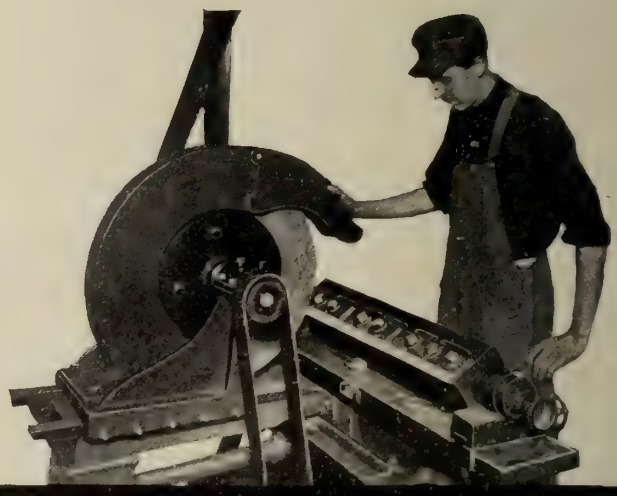


**Would'nt you like to have it do that for you?**

**J. M. Nash,** 842-848 30th St. **Milwaukee, Wis.**

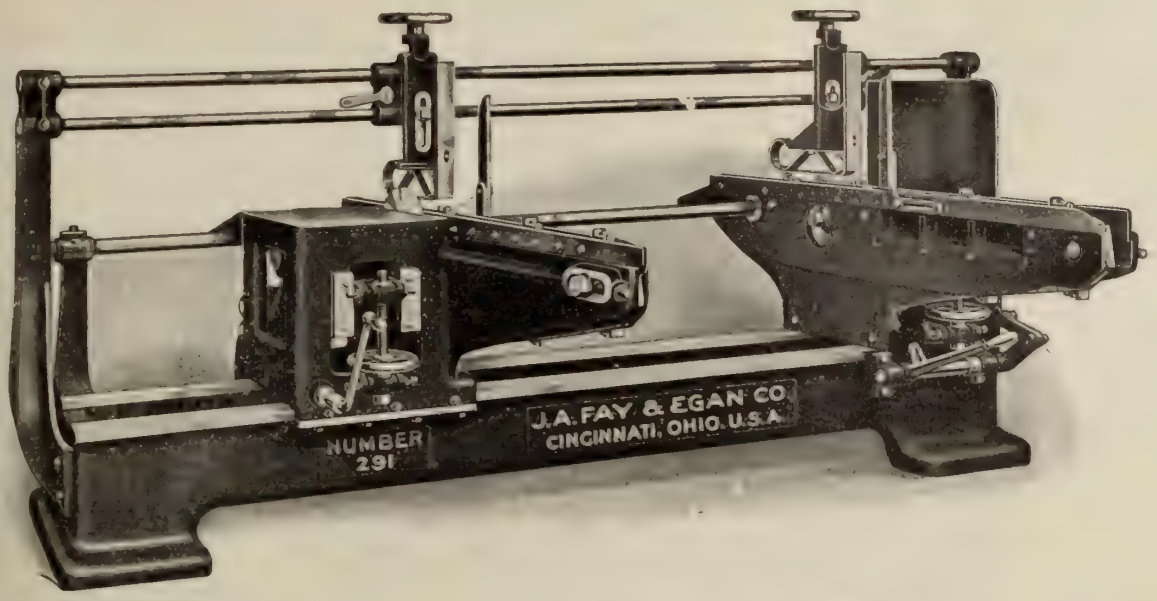


**Carborundum Knife Grinding Wheels have cut their way into favor in many of the most prominent wood working establishments in the country**

They not only do twice the work of any other grinding wheels—but they do it better and cleaner. They stand up well—do not burn the work—do not draw the temper even from the finest steel. Require almost no attention and last much longer than other abrasive wheels.

**THE CARBORUNDUM COMPANY**

**Niagara Falls, New York.**




# A New Automatic Double Cut-Off Saw with Hopper Feed

The **capacity** of this machine is practically **unlimited.** It will cut off both ends as fast as your operator can throw the stock by the arm full into the hopper and the off-bearer carry it away.

A large factory cannot afford to be without a No. 291. It will **take the place of at least three** of the old style machines, and do better work.

The small shop too, will find it **a paying investment.**

No matter what kind of a double cut-off saw you are now using, **you will eventually buy a No. 291,** because—

It's the strongest and most simple in construction **—built like a machine tool throughout**—no chance for a breakdown.

It's the only **absolutely accurate** double cut-off saw made. The dogs that move the stock along the sides are screwed into a chain made of milled steel blocks, and each dog has seperate **micrometer adjustment.**

The **saws** are **enclosed,** forcing the sawdust directly into chutes which are connected to the exhaust pipes,

The rack and pinion arrangement for changing to different lengths is **more accurate** and **twelve times as fast** as any other.

Countershaft is bolted on the rear of the frame, to give good belt length, insuring **greater driving power and minimum belt wear**—and belts are expensive.

Every **adjustment** is made **easily** and **rapidly.**

**You owe it to your business to investigate this new tool. Write for details and price—it don't obligate you to buy.**

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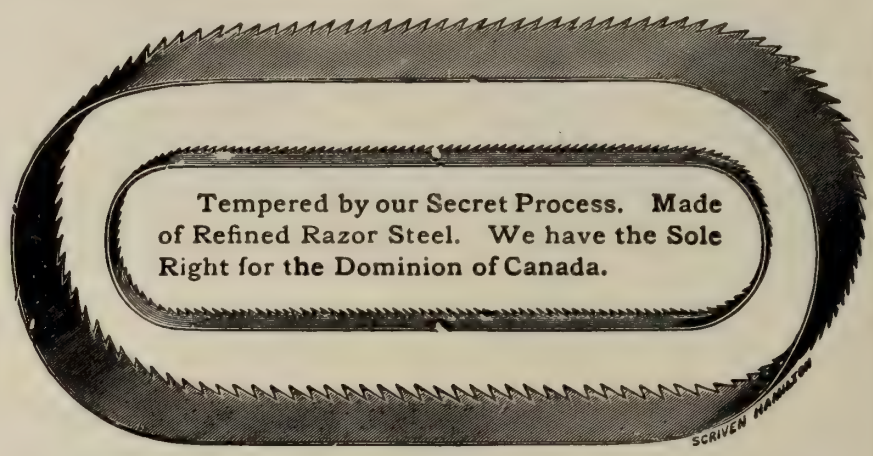


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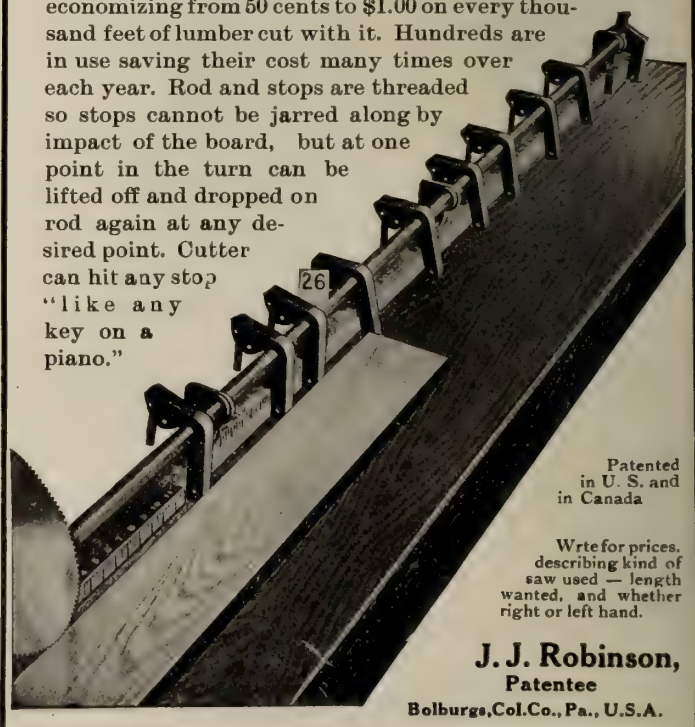


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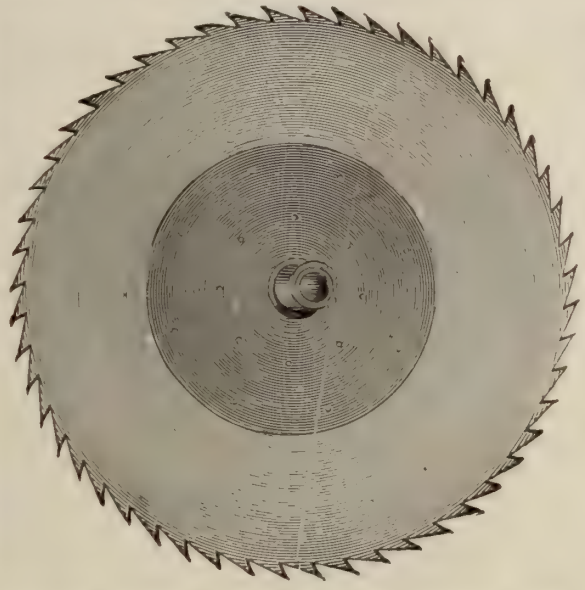

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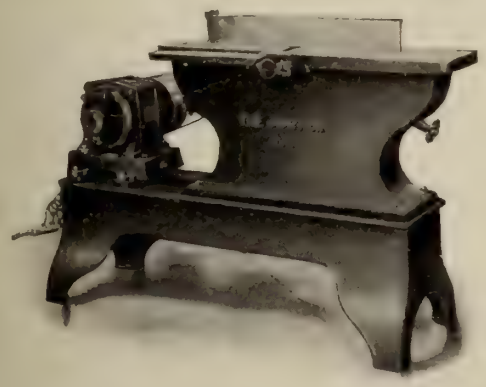

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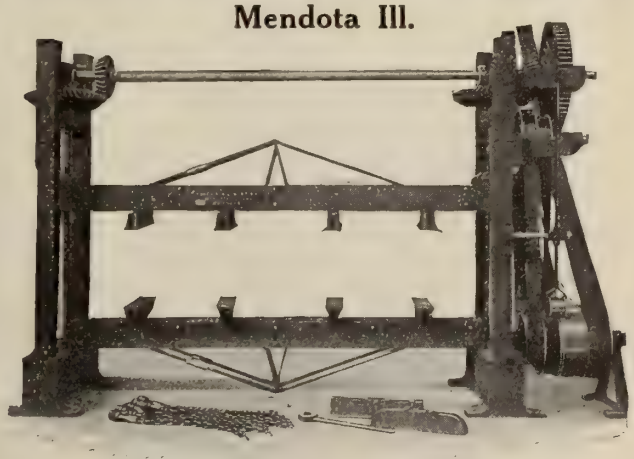

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and
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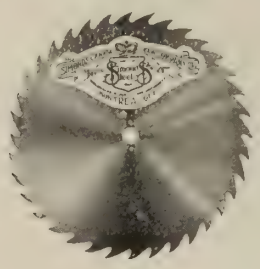
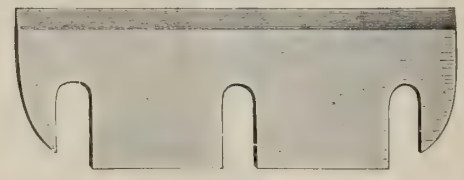


working Machine Knives. They may put these goods on the open market, but what a difference from goods made in the Simonds way.

When you buy Simonds Saws or Knives you not only buy material but you also buy Experience. Our factories are manned by competent men, these



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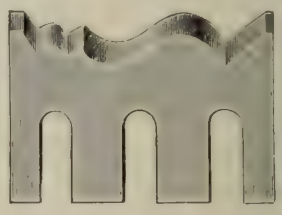
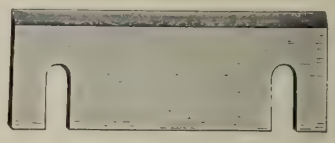
There is no limit to the size of Circular saws that we make excepting the limit placed by



use. Band Saws we can furnish in all regular widths and lengths. Knives of all descriptions, also Files and Hack Saws. Simonds Saws satisfy.



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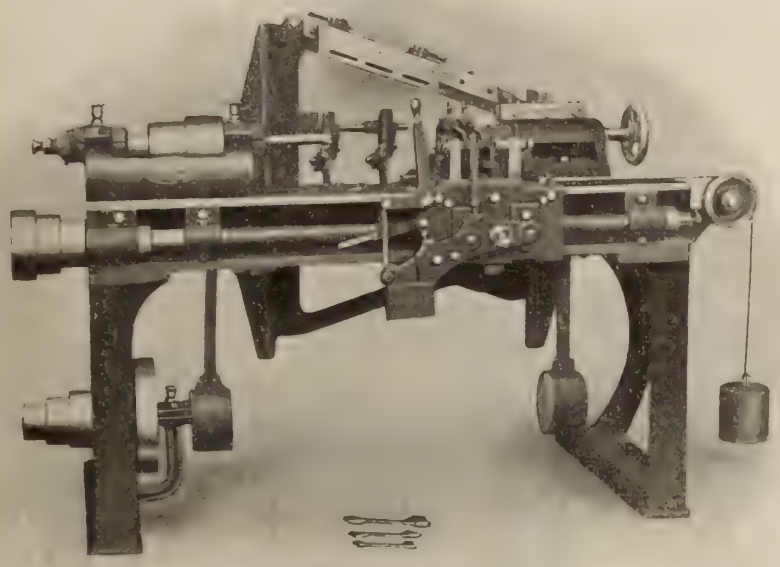

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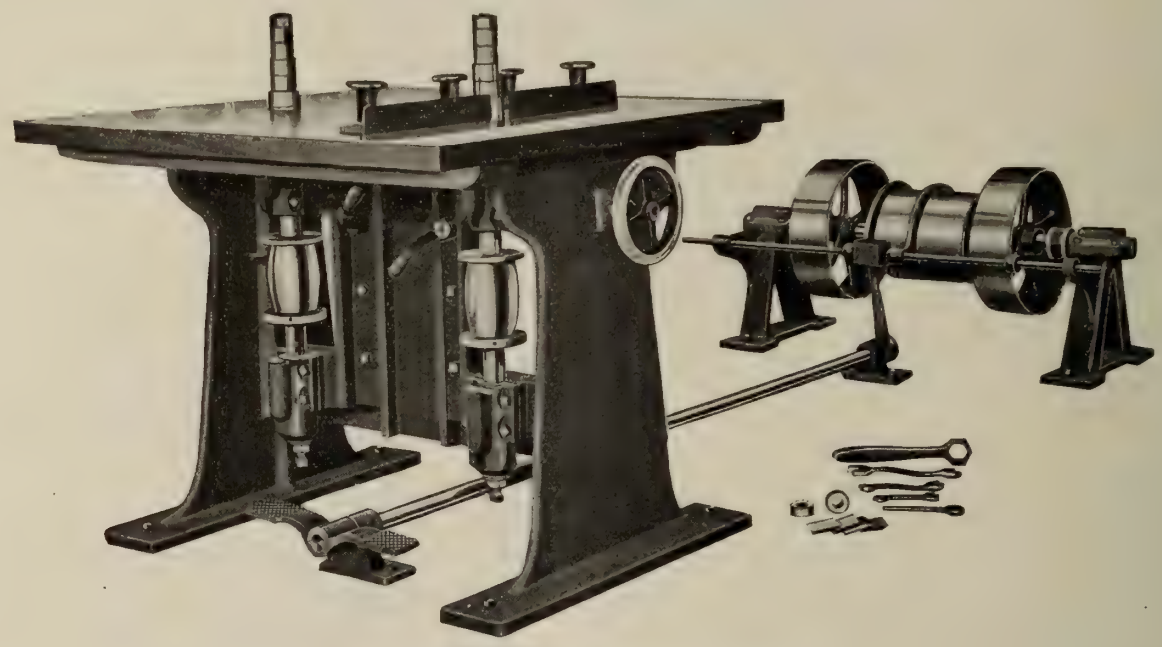

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**Vol. 10** **November, 1911** **No. 5**


## Building Operations Breaking All Records

Building permits issued from day to day show that there is likely to be a continuation of the present brisk trade in mill work in every section of the country.

This has been Canada's record year in the building trade. The orders for mill work placed with the various firms throughout the country have been enormous. Indeed, in some plants it was found necessary to run overtime in order to keep up with the demand.

More hardwood work has been used during the past season than formerly, and to handle this, many firms have found it necessary to add new machines and to build extensive additions.

So far there are no signs of any falling off in business, despite the approach of cold weather. Some contractors and mill men report that they will be busy all through the coming winter completing inside work on jobs now under way.

## Fifteen Million Mark is Passed in Vancouver

Building permits for the year passed the fifteen million dollar mark yesterday, the limit set at the beginning of the year by Building Inspector Jarrett as the probable aggregate for 1911. With two months yet to add to the record the showing ought to be satisfactory to the most optimistic.

## Will be a Good Record Year for Building in Toronto

The approximate value of the new buildings, for which the City Architect's Department issued permits the first ten months of this year, was $20,306,697. This was an increase of $2,572,209 over the value of buildings erected in the corresponding period in 1910, when the figure was $17,734,488. There were 1,206 more new buildings erected from January 1 to October 31, 1911, than in the corresponding ten months of 1910. The number in the stated period last year was 7,370.

The approrimate value of the buildings for which permits were issued last month was $1,798,042, as against $2,914,980 in October, 1910. This decrease of $1,116,938 is attributed to the fact that October, 1910, was a record month for last year, and included in the permits was a considerable portion of the new Toronto General Hospital. There was a slight falling off in the number of buildings for which permits were issued last month, 804, when compared with the number in October, 1910, 862.

This will be a record year for building operations in Toronto, and the value of new buildings will be several millions greater than that of last year.

## Building Record in Regina, Sask.

Building operations during the present year to date have shown an unprecedented increase. Up to the present time the permits issued by the building inspector were for buildings of an estimated value of $4,943,070, or over double the amount of building done during the whole of las year. During the early spring, when the building was at its height, the mark set by the civic officials was $5,000,000, and there is every indication that that amount will be erceeded by at least $200,000, as several undertakings already under way have not yet been included.

The exact increase of the present year to date over the whole of last year is $2,591,872, or over $200,000 in advance of double last year's figures. The building activity has shown a steady increase during the present year, and the latter months of the year promise to eclipse the corresponding periods of former years by comfortable margins.

## Building Up Kingston, Ontario

During the ten months of the year building permits to the value of $400,000 have been taken out in Kingston.

## Winnipeg Buildings

Winnipeg—Building permits for the first ten months of the year total $16,939,000, as against $13,-765,650 for the same perior last year.

## Needed Two Permits

South Vancouver.—Building Inspector A. E. Young has received a great many inquiries of late regarding the conditions set forth by the new building by-law. Some of these inuiries are interesting inasmuch as a glimpse of romance is often seen mixed up with the usual technicalities. Here is a sample:

"Dear Sir,—I am going to get married at Christmas and I will have to build a house to live in on L.— B.—, D. L.—. Will you kindly inform me if I need a permit?

"Yours truly," etc.

After reading the above letter Mr. Young was not satisfied whether or no the applicant wanted a permit in order that he might become a benedict or for the erection of a domicile, so he replied as follows:

"Dear Sir,—Your inquiry re permits received. You need permits in both instances mentioned in your letter. In the first case you get it from the parents, in the second one come to me.

"Yours sincerely, the Building Inspector."

If you are still trying to use your sander as a planer, you are abusing the sander and also beating the planer man out of a job.

Don't take a difficult piece of machinery apart without having each piece marked to show where it should go back.

# General Factory and Machine Shop Lubrication

It is a matter of common knowledge among well informed factory managers that the power loss due to the friction developed in the moving parts of machinery, is considerable. In the endeavor to reduce this absorption of power experiments have been and are being made with types of roller and ball bearings. Lubrication, however, is a question just as important. As a consequence of the failure to appreciate the necessity for the investigation of lubricating problems and choice of lubricants, the possible saving in this direction is frequently very large.

A considerable reduction in power can usually be effected by simply changing the oil. These reductions will in many cases be approximately the same as the substitution of roller or ball bearings for the ordinary type of bearing. This being the case, it seems advisable to consider the elements bearing upon efficient lubrication in a practical way and the necesseties for the right quality of oil in the right place.

When reductions in power to the extent of ten or fifteen per cent. in the driving of workshop machinery and shafting are easily brought about by the re-establishment of oils or the use of more suitable lubricants, and when this reduction of power can in many cases be brought to as high as thirty or forty perecent., it is very evident that the investigation of this subject is worth considerable time and trouble.

Because a good quality of oil is bought by the purchasing agent of a company it is not true that this oil is used to the best advantage in the works. As an example: If an oil similar to a high class of dynamo oil is bought by the purchasing agent in large quantities for a general machine shop and, as frequently happens, a considerable portion of this oil is mixed with either cylinder or black oil—to suit the operator's idea of what he imagines is the proper compound for general lubrication of machinery—the mixture is not at all adapted to the work which it is made to perform; and (if the original oil is being mixed with cylinder oil, as is sometimes the case) the cost is greatly in excess of what it should be, and the efficiency of the oil as a general lubricant is considerably impaired, even though the cost has been increased.

It is impossible here to make any statement as to the use of different classes of lubricants for certain purposes, as the conditions of speed, pressure, class and arrangement of machinery, the devices employed for the lubricating, etc., have considerable effect, not only upon the oil used but upon the character of oil which is most efficient for the work.

It may be stated, however, that the use of light oils is possible only where special mechanical devices are arranged for the purpose of lubrication or where the shafting has the proper ring oiling bearings, etc. It is also true, as a rule, that floor machinery cannot be lubricated satisfactorily with the same oil that is used for modern shafting. Floor machinery itself can very well be divided into three classes, each class being lubricated with a different oil.

In the lubricating of plants of a general character it is customary to use grease or solid lubricants for some purposes. In some cases greases can be used with economy, but an excess of grease will act against the actual economy of operation on account of the increase in power required to overcome friction of the parts where the grease is used. It is invariably the case that grease will require the development of more power than necessary where oil is being used, and the only features that commend grease as a lubricant are its greater cleanliness and the fact that less attention is required in the lubrication of the various units.

Where bearings have some mechanical fault of construction or alignment, or are ronghly fitted, or where it is not worth while to produce a proper fit, they absolutely require grease as a lubricant; but even under these conditions such bearings can be lubricated in some cases more cheaply by the application of heavy cylinder oil.

In considering the efficiency of lubricants for general purposes, the fact that grease will reduce the bearing temperature of an improperly constructed or mechanically imperfect bearing should not be taken as indication that the same results will obtain from the use of grease through the entire plant, where probably almost every other bearing is in good condition.

It is very frequently the case, however, that grease is placed in a shop for general lubrication on account of just such a misconception from its work upon an imperfect bearing, the imperfections in the bearing not being taken into consideration. The fact of the matter is that the reduction of the temperature in this case which follows the use of grease in the bearing is the result of a special condition and does not illustrate the general applicability of the material.

The amount of oil required to provide proper lubrication in order to reduce the friction loss as nearly as possible to a minimum is so small that if it were possible thus to reduce the amount used the oil accounts of every company would be cut in half and in a number of cases possibly a large reduction would be undertaken.

The high oil accounts as a rule are due to the waste of oil. In order to reduce this waste and bring it down to a proper proportion of the amount of oil necessary for the lubrication of the machinery, etc., it is absolutely necessary that appliances should be installed which will enable the proper care to be exercised in the use of lubricants.

The installation of the gravity feed system, of appliances for catching the waste oil as it comes from the bearings, etc., so that this oil can be cleaned and re-used, the use of ring oil bearings, pad lubricators, sight feed pressure pumps and pressure lubricators are all necessary for the elimination of the waste of oil and the consequent reduction in the amount paid out on account of lubrication.

If the gravity feed system be employed, the oil can be used indefinitely, and, besides the economy secured from the re-use of the oil, additional power economy is obtained from the fact that a large amount of oil can be used by flooding the bearing and consequently securing a good free film of oil between the surfaces which assist in the efficient lubrication and reduction of temperatures.

All devices which are installed for the purpose of saving otherwise waste oil require that the oil used for lubrication shall be excellent in quality. A poor quality of oil will not stand continuous use without breaking down and consequently defeating

the very purpose for which it is to be used—that is, the reduction of loss by friction.

A great many shops, while they are heated during the working hours in winter, are apt to become cold during the night, and in order to provide efficient lubrication under these conditions the oil should be of such a character that it will remain fluid during cold temperatures. Under these conditions it is necessary that the oil shall have a (low) cold test, of at least 25 degrees above zero, in order that the lubrication be effective.

The science of lubrication is a very intricate one and the problems to be handled are so many and varied, involving as they do the mechanical conditions of the plant, the physical and chemical characteristics of the oil and the partly physical and partly chemical action arising from the conditions under which they work, that it is impossible to do more than state these one or two general points in an article of this kind. In fact it is necessary for effective lubrication that this matter should be handled by a man who is expert in both the theory and practice of the science, otherwise even the most effective devices employed for the purpose of saving the waste oil and allowing efficient lubrication will be of little avail in the actual reduction of lost power by friction.

Practically the only people who have had a large and varied experience in the science of lubrication are the experts employed by the large oil manufacturing companies who have had the opportunity of gathering data regarding the conditions presented in practically all the variations possible, and are therefore constantly accumulating information showing that the systematic and careful study of lubrication has resulted in a reduction of the lost power and consequently expense in the operation of machinery, and in further reductions in the amount of oil used; to the benefit of users of power of all kinds; and in addition to this fact such a study has resulted in the production of oils better suited for the purpose of lubrication from a manufacturer's standpoint, so that the continual tendency is to provide possibilities of further reduction of the loss due to friction in moving parts of machinery and other apparatus.—Scientific American.

## Lubricating Oil Tests

From the fact that it is a common practice to use lubricating oil again after filtering it, Messrs. Sabatie and Pellet found it of interest to see whether such used and filtered oil showed any great difference from fresh oil. Analyses showed the following results. The density of the oil is somewhat increased, this being no doubt due to the evaporation of volatile portions of the oil. The flash point and combustion are a few degrees higher. About the same viscosity was observed in both cases. The acidity of oils is not changed, but the percentage of vegetable or animal oil in mixed oils is considerably lessened. From a practical standpoint the used and filtered oil keeps all its lubricating qualities, provided that care is taken to secure a good filtering so as to remove all the solid particles.

## A Wonderful Turbine

Not long ago, in a gas factory at Irvy, near Paris, a Laval turbine, driven by jets of steam, was set to work, and once fairly under way, was driven for 3,600 hours, or 150 days, without stopping for an instant. An automatic oiler kept it lubricated, and a workman visited it once in twelve hours to replenish the oil reservoir. The speed of the circumference of the rotating disc being six miles per minute, a point on that circumference must have travelled in the course of the 150 days almost five and one-half times the distance from earth to the moon.

## How Waste Coal Can Be Used for Power Purposes

An illustration of the feasibility of using waste coal for power purposes has just been given in Hull, England, one of the new patent water-tube boilers having been installed in an oil mill in that city. The success of a public exhibition given shows, it is claimed, that much coal which has heretofore been rejected as worthless can be used, and that greater efficiency can be obtained from this waste coal by the new method than from the best coal by the old method.

The system employs the known principle that almost perfect combustion can be obtained by mixing air in proper quantities with pulverized coal before the latter is introduced into a furnace. This insures better combustion with less air than usual, and with a consequent increase of boiler efficiency by reducing the amount of heat carried away by the escaping gases. The results obtained with the poorest kind of fuel are claimed to be as follows:

First—The almost total elimination of losses, as all the fuel is burned in suspension, the amount of unconsumed coal in the furnace at any given time being infinitesimal.

Second—The rapidity with which steam is raised under ordinary conditions. The system differs from others in that with ordinary fnrnaces some time is taken before the fires are completely alight, but in this case as soon as the boiler is fired theoretically full effect is obtained.

Third—The smallest and cheapest kinds of "slack" are burned with ease, and high efficiencies are obtained.

Fourth—The arrangements which permit a close inspection of the straight certical tubes.

Fifth—The reduction of supervision necessary.

Coal dust costing $1.25 a ton, which could not be utilized in any other way, was burned under this boiler, and gave equal efficiency as compared with coal costing $2.50 a ton and used with the old style of boiler. The boiler can be started and stopped by holding the fire up, in one minute. In twenty-six minutes a steam pressure of 180 pounds can be obtained, whereas it takes four hours to fire a boiler of the old style. At meal times the fire can be cut off and a great saving of coal effected. An additional advantage is that the space occupied by the boiler is considerably less than that required for the ordinary boiler.

Keep all nuts tight, but bear in mind that you can't compress cast iron with an ordinary bolt. One should learn to tell by the "feel" when he is getting on all the strain a bolt will bear.

If the top cutterhead of a planer rises with the strain of heavy cuts, it makes all the more important the careful adjustment of caps on the journal boxes to prevent play in the journals.

# The Art of Hardwood Finishing

## Restoring Antique Woodwork, Mahogany and Other Finishes of Birch, Practice of Hardwood Finishing, Rubbing with Pumicestone Powder and Other Kinds

By Ashmun Kelley

The repeated applications of varnish greatly lessen the inherent beauty of antique furniture. When this occurs it is necessary to remove old varnish and the accumulation of grime and dirt to the wood, thus restoring the original color and lines.

### Restoring Antique Woodwork

Take equal parts of strong alcohol and turpentine spirits and heat the mixture in a pot of water. With the heated mixture coat the surface of the work over several times, or until it finally loosens the material, and in the meantime keep the fluid warm, for this will greatly increase its efficiency. When the fluid has softened the old varnish sufficiently, scrape it off carefully, avoiding any marring of the wood, and finally wash off with more of the remover, wiping clean with a dry rag.

Then the restored wood may be finished as you like, either with oil or varnish, or shellac. I find it well to rub over it some color that agrees with the color of the wood, say umber of walnut, and after having rubbed this into the wood as well as the filling will permit of then rub all off as much as possible; still enough will remain to give a uniform color to the surface.

It is certain that linseed oil will cause oak to darken in time, and hence it is well to omit the oil on the bare wood. Use instead a good light-colored varnish.

### Birch Our American Mahogany

When well seasoned, birch is an ideal wood for cabinet or furniture work. Birch may well be dubbed American mahogany. It is as little affected by atmospheric changes as any wood I know, but of course it should be well seasoned. This wood is very much to be preferred to cherry or maple for enameling. It is much freer from sappy streaks or dark parts. New England has large quantities of white birch. The red variety also is found in other parts of the country in abundance.

### Mahoganized Birch

I once saw a set of fine mahogany bedroom furniture, veneered work, the bottom panel in the headboard being of birch mahogany. So well was the work done that it was impossible to tell the real from the imitation. Of course the finisher was an artist in his line.

This job was stained with a water stain, then filled to match the stain, using a transparent filler, after which a coat of shellac was applied. This in turn was well sandpapered with fine paper. The filler was allowed to stand two days that it might become perfectly hard. The coat of shellac was followed by two very thin coats of a mineral first coater, two days being allowed between coats. The last coat was sandpapered, after which a full coat of cabinet polishing varnish was flowed on. This stood ten days when it was polished.

The two thin coats of primer gave a perfectly smooth, non-absorbent surface, which took the flowing coat of polishing varnish evenly and yet with such fullness of body as to give ample body for rubbing and polishing.

Birch, in its curly form, in the veneer, is largely used for making imitation mahogany and it should be treated precisely the same as mahogany. It should be filled. Some finishers do not do this, ma king a mistake I think. The filling means the saving of a coat of varnish, or first coater, and two or three days' time. The pores of the wood are not large and the filler may be made from five pounds of paste filler to the gallon of liquid.

### Curly Birch

Curly birch possesses a fine figuring but its color is not perfect, lacking in tone or character. Hence we would not think of finishing it in the natural. There are several shades of stain adapted to its finishing, made from mixtures. Usually these three are found sufficient, namely, golden, golden and dark red. The golden finish may be had by using raw and burnt sienna and just a pinch of chrome yellow, lemon shade. Mix this formula with your first coater, follow with a second coat of the primer, and finish with polishing varnish.

However, I think a better effect can be had by using red and yellow lakes, which would show a color tone the same as with the other pigments, but the coloring would be transparent, leaving none of the little flakes of color as seen in the first formula. The light red is rad from burnt sienna, and the dark with burnt sienna and Vandyke brown. These are sometimes applied as a stain, a very thin turpentine stain. In some cases the pigments are combined with the first coaters. The latter way is perhaps the best, but as in the former case it is preferable to use transparent or lake stains.

Undoubtedly the best way to finish birch is first to apply a filler, having it tinted to the proper shade and making it with five pounds of paste filler to the gallon of liquid. After 24 hours sandpaper well and give it a coat of primer tinted to shade required with lake pigments; 24 hours thereafter sandpaper well and apply a coat of primer; sandpaper this at the end of 24 hours and flow on a full coat of the very best pale cabinet polishing varnish. Then polish as usual.

### Hardwood Finish Practice

The first thing to do with a piece of hardwood that is to be "finished" is to get it perfectly smooth. Sandpaper always with the grain of the wood and avoid cutting sharp edges. The close-grained woods, such as pine, cherry, maple, white or basswood, svcamore, etc., require to be filled with liquid fillers. Maple and similar woods, such as sycamore, for instance, are best filled with thin shellac varnish. For maple in particular, while shellac is good. The wood should be quite dry, and the work done on a dry place. Varnish should be perfectly dry-hard before it is again coated, and two or three days will not be too much time to allow, in a temperature of about 70 degrees. Flow the varnish on, and lay off smooth, avoiding sags and wrinkles. Oak and its class of open-pore woods need a paste filler, followed sometimes with a

liquid filler or surfacer. In some cases two coats of paste filler is best; on chestnut for instance. The liquid surfacer will fill places in the wood that the paste could not enter, and it satisfies the wood so that it will not rob the varnish of its liquid.

Various substances have been used for filling wood, among which may be found cornstarch, China clay or kaolin, etc., but long experience has taught us that nothing answers the purpose as well as very finely pulverized silex. It is not subject to decay, as cornstarch is, and it fills the pores perfectly, which China clay and the others cannot do.

### Fillers and Filling

Cornstarch filler may be made from a mixture of equal parts of japan drier, raw linseed oil and turpentine or benzine, to which add enough cornstarch to make a stiff batter. The best way is to pour the liquid on to the starch and allow it to lie over night, in which time it will have entirely permeated the mass. It should then be like very thick paint. If it should set too quickly add a little raw oil to retard it. Use a stiff brush for putting it on. Just as soon as it parts with its gloss, after application, you may begin rubbing it into the wood and off of the surface of the wood finally. Have everything ready at hand. Wipe off first with excelsior, then with clean rags, using a wooden pick for cleaning out corners, etc. A good tool may be made from the handle of an old toothbrush, whittled or sandpapered at one end like a lead pencil and made chisel-shaped at the other end. Carved parts may be filled by thinning some of the paste quite thin, applying it with a No. 4 sash tool and wiping off lightly with a bit of clean rag.

Fillers, liquid and paste, come ready made and colored if you wish. If you make your own then add any color to suit the wood. Oak will need raw sienna or ochre. For darker effects burnt umber with some black will be useful. The transparent pigments are of course the best for the purpose. Umber, sienna, Vandyke brown and asphaltum are all good colors. For black walnut use burnt umber and some Venetian red, or rose pink, which will enrich the umber. Vandyke brown alone is also a good pigment for black walnut. The thing to do is to get the filler as nearly the color of the wood as you can. Filler for California redwood, mahogany, and similar woods of reddish cast should be stained with burnt sienna, rose pink, and in some cases with the addition of a trifle of black.

For staining cherry it is well to use burnt sienna, with a little rose pink and black. To get an old cherry effect, give a coat of shellac reddened with dragon's blood after the staining is dry.

If you have occasion to stop nail or other holes in hardwood, defer it until you have the second coat of shellac or varnish on. At least do it after there has been enough finish applied to bring out the true color of the finish, in which event you can match it with the putty. It is advisable to make the stoppage or putty a little darker than the wood or finish. The wood will grow darker in time, which the colored putty will not.

### Rubbing with Pumicestone Powder

I find it very convenient to have a box made to hold my oil and powder. Here is the way it is made: It is a piece of board about 15 inches long, having a bottom 8 inches wide, and sides 5 inches high, with only one end covered, the sides being made to slant or taper down toward the open end. I take a two-pound color can and put in it equal parts of benzine and crude oil. In another but shallower vessel I place the pumice flour; or it may be placed on the bottom of the long box. Fur rubbing use a piece of felt or a piece of haircloth about four inches square. Fold it and dip it in the oil, next dab it into the pumice powder, and go ahead with the rubbing. Let me add right here that when you are rubbing a job of this kind you have no need of a tongue but certainly you will need eyes and good ones at that. Your whole attention must be given to the work.

It would appear to the amateur that the more pumice used the faster the cutting down, but that is not so. Use plenty of oil, or water when that medium is employed, and only enough pumice for the work under the rubbing pad. Rub in a circular form, rubbing evenly, and once in a while thumb the surface of the work to note the progress of the cutting. Do this crosswise of the rubbing.

For moldings and carved work you will find it well to use a tool made by rolling up some haircloth until it is about ¾ inch thick, then ravel out the end like a brush.

### Gloss Finishing

All the foregoing relates to dead finish work. For a gloss finish, use burlap in place of haircloth. After the rubbing down, the gloss may be brought up with rottenstone and oil. Another way is to use rottenstone and pumice flour, half and half, rubbing with burlap.

## "The Lightning Line"

The above is the title of a new monthly just brought out by the J. A. Fay & Egan Company, Ltd., manufacturers of woodworking machinery, of Cincinnati, Ohio. The book contains much of interest to manufacturers engaged in woodworking industries, and also to operators of woodworking machinery. Anyone desirous of obtaining this book free may do so by applying to J. A. Fay & Egan Company, of Cincinnati, Ohio, and mentioning the "Canadian Woodworker."

## Twelve Species of Lumber Used for Laths During 1910

Within two years, the number of the kinds of wood used for laths has been doubled. This increase is illustrative of the extent to which lath production is becoming an adjunct to larger wood industries. Small quantities of lumber of odd sizes, slabs and what would otherwise be mill waste are conserved and used to advantage this way. The Forestry Branch of the Department of the Interior has compiled statistics for 1910, showing that twelve species of wood were used in the production of the eight hundred and fifty-two million pieces of lath produced in 1910, worth one million, nine hundred and forty-three thousand dollars. The first six species in importance were spruce, white pine, cedar, douglas fir, hemlock and balsam, which also are the woods used for some time in the manufacture of laths. The remaining six, jack-pine, red pine, yellow pine, poplar, basswood and larch, are the new species increasing in importance. Spruce and white pine laths, the two most important species, show a decrease in 1910 from the year previous, but together form nearly seventy per cent. of the annual output. Some million and a half more pieces of cedar were cut in 1910 than in 1909, and the amount for this species of seventy million pieces made up one-twelfth of the total. Prices ranged from $1.25 for yellow pine to $3.18 per thousand for poplar.

# The Real Joint Strength in Animal Glue

**By Frank Kahrs, Who Has Devoted Much Time and Investigation to the Subject of Glue**

Much has been said on this subject, and more surmised, but the facts expressed in figures are not known except to a few. The cause of this we find in the difficulty of making reliable test of a joint; when figures vary several hundred per cent. we can not use such figures as a guide. Too many factors influence the strength of a joint. That is the trouble, and we knew not until recently how to control these factors.

Another hindrance was that the entire glue trade is still in its practice bound to a faulty doctrine, namely this, that the binding power of a glue is always indicated by its jelly strength, this way: the higher the jelly strength, the higher the binding power of the glue. As long as this rule was upheld as correct the experimentor was not inclined to give credence to the joint strengths he produced unless they were in strict accordance with the jelly test grading of the glue—and when hereto is added the fact that the strength-tests would, for the same glue on the same wood vary two hundred per cent. or more, the truth could not well be recognized until both of these distributing factors were removed, and that was not done until less than two years ago. The writer had then a chance to develop better facilities for such work, and when that was done it was clearly seen that the old rule about the jelly strength as a gauge for glue strength was not universal, and that the exceptions were numerous.

When the task had been finished the writer had incidentally worked out possibilities for a new testing process for the determination of glue-strengths on new lines and independent of the jelly-strength tests. At the same time these methods were adapted to the gauging of the real binding power present in any adhesive applicable to wooden surfaces; in that way there had been established a gauge for the measuring of the binding power developed by various adhesives no matter whether of animal, vegetable or mineral origin.

For the animal glue the practical joint strengths can now be ascertained with a reasonable amount of accuracy, and under average test conditions the tensile strength of an endwood joint will vary from 2,200 lbs. per square inch and down to 800 lbs. or less. The test is then made by suspending the test-block vertically and while it is thus hanging on two pins apply weights until the weight pulls the joint apart. In later articles we shall give all the details, showing test-locks and test machine. The proceeding is the same for all glues and for all testblocks same temperature, same pressure, same amount of glue and water. The gluecoat in the joint is made near to 1 pound dry glue covering 25 square feet as possible.

The main factor influencing the joint-test is the tensile strength of the glue; by that is here specifically meant the weight required to tear apart a piece of solid glue one inch square, the pulling to be done in similar way to the pulling of the joint. The higher this resistance the more weight required and the stronger the glue. The tensile strengths of the animal glues we here consider run from 14,000 lbs. and down to 3,000 lbs., and the higher grades run up to 17,000 lbs. For a comparison it may be stated that there are grades of cast iron testing around 16,000 lbs. from which it will be seen that a high grade glue compares in tensile strength favorable even with cast iron.

The binding power of a good glue can not be gauged from a joint and in figures except we do it with an endwood joint; if we make up a rub-joint or a crossgrain joint and pull it apart we have to break the wood or pull out particles of wood that is not the pulling or the breaking of the glue; such joints, especially rub-joints, are in a majority of cases stronger than the wood itself, and if the testpiece is split, it splits not in the glue seam but somewhere else. The making of rub-joints can therefore not tell us the strength of a glue, but we ascertain one fact and an important one, namely, whether or not the adhesive will hold the wood as firmly together as if the wood was solid. There is the main practical requirement of the joiner, the joint should be as strong as the solid wood; if the joint has such strength good and well, and little does he care whether there is any excess of strength in the adhesive over and above this primary requirement.

Somewhere we strike the limit; if we go down low enough we find glues and adhesives which will not make a safe rub-joint, and if we know the binding power of these on endjoints we have a good conception of where is located the safetv line. Summing up the test results we have, it has been found that it is not safe to use for hardwood joints any glue or adhesive coming below 1,000 lbs. joint strength per sq. inch of oak, because adhesives giving less than 800 lbs. will begin to show poor results on rub-joints. As a rule we find glues of such binding power can not me bought much below 9c., and here the experience of a large number of consumers in a general way confirms the result indicated by the tests. The combination of joint-tests on endwood and tests of rub-joints is required if we want to determine the practical applicabilitv of any adhesive in any special case; if we want to know for such a case the limit of safety and the amount of real joint strength.

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## Prevents Rotting of Wood

### Process Invented Which Preserves it From Decay

"Persisterilization" is a process invented by a Budapest engineer to prevent the rotting of wooden posts, telegraph poles, fences, and railroad sleepers, notably those parts that are exposed to permanent contact with the earth. The invention consists in treating the earth chemically so that it is completely freed from organisms.

The earth dug out to make the necessary hole is so thoroughly soaked with a sterilizing flui dthat all insect or fungoid life is killed once and for all. The advantages claimed for the process are that it is easy and cheap, that it obviates the difficulty in rural parts of obtaining wood treated with creosote or other preservatives, and that any wood available on the spot can be immediately used for the work in hand.

## New Woodworking Industries

### Two New Industries Coming to Windsor

Windsor.—By the vote Windsor ratepayers cast on two industrial by-laws submitted by the City Council the city secures two more important industries, the Hupp Motor Car Company and the White Machine Works, the latter a branch of a company at Eauclair, Wis., manufacturing sawmill machinery. The by-laws were carried almost unanimously, only fifteen votes in the entire city being cast against them.

Anticipating the success of the by-laws, the White company has already broken ground for a factory 36 x 100 feet, of steel and concrete, in which it is expected 100 men well be employed.

The Hupp Company has plans prepared for two buildings of similar construction, one 176 by 128 feet, and the other 36 x 175 feet, which will be erected at once. The company expects to employ between 200 and 300 men.

## New Industry for Stratford

### Bennewitz Manufacturing Co. Secure Local Factory

During the past week the Board of Trade have been negotiating with Paul Bennewitz, of the firm of Bennewitz — Schultz, of West Toronto. The factory of the Perth Flax — Cordage Co. was purchased by Mr. Bennewitz, also about four acres of land which surround the building.

The building is a brick structure, 215 x 40 feet, two storeys high and on a fine site.

The firm will be incorporated as The Bennewitz Manufacturing Co., Ltd., with Mr. Paul Bennewitz as manager, and will manufacture piano stools and benches, music cabinets, music boxes, piano keyboards and piano strings. About 30 men will be employed at the start. The firm will move to the city next week, Mr. Bennewitz having devoted to-day to letting contracts for putting the factory into good shape.

The Bennewitz firm found it necessary to seek larger premises, having outgrown their West Toronto plant. The factory secured here will give ample scope for increasing business and will fit in nicely with the imposing group of wood working industries for which Stratford is noted. It is also gratifying to have a fine factory building so long idle, again running.

## Brantford Man to Take Over Toronto Planing Mill

Mr. Rastall, mayor of Brantford, Ont., has purchased the Martin McKeee planing mill business on Queen street east, Toronto, and will assume control of the business January 1st.

## Wood Used for Shingles, 1910

Ten species of wood are used in the manufacture of shingles in Canada, of which cedar is the most important. Reports received by the Forestry Branch at Ottawa show that over nine-tenths of the two billion shingles produced in Canada during the year 1910 were of this species and that over one-half of these were western cedar cut in British Columbia. The consumption of spruce and white pine has decreased suddenly in 1910, eighty-two per cent, less of the former being made than in 1909, and scarcely one-fifth the usual amount of white pine being produced. Nova Scotia and Quebec cut most of the spruce shingles. The white pine shingles are mostly of the species Pinus monticola and are cut in British Columbia. Nearly three million more of hemlock shingles were produced in 1910 than during the year previous, and of the total of fifteen million pieces, over nine-tenths was produced in Ontario and Quebec. The above four species furnished over ninety-eight per cent. of the wood used in shingles. Balsam, Douglas fir and jack pine, although of less importance, were used during 1910 in increasing quantities, and for the first time, tamarack and red pine were reported as shingle wood. There was less fluctuation in the value of the species than formerly. Balsam shingles were the cheapest at $1.48 per thousand, and tamarack the most expensive at $2.49.

## New Industry for Pembroke

If all goes well Pembroke will have a new industry in the form of a large sash and door factory. The company now seeking incorporation will be capitalized at $250,000.

The factory will be a new one constructed on the most approved plans, and equipped with modern machinery. Upwards of fifty men will be employed when the plant is completed, which will be early next spring.

## His Grievance

Editor—We are sorry to lose your subscription, Mr. Jackson. What's the matter? Don't you like our politics? Mistah Jackson—"Tain't dat, sah, tain't dat. Mah wife jes' been an' dun landed a job o' work foh me by advertisin' in youh darned old papah!—Puck.

## Recent Inventions

Pulley and bearing therefor.—M. H. Avery, Dover, N. H. This invention provides devices for pulleys arranged for continuous circulation of oil from the centre to the end of the bearing and return; provides a construction for pulleys whereby is avoided droping of oil from the pulley or bearing therefor; and provides an oil distributing and lubricating bearing for a loose pulley.

## Jobbing Carpenters Busy for This Time of Year

The custom of enclosing the porch or verandah with fixed or sliding sash is not a new idea. But each year the practice is becoming more general. This, along with the work of putting up storm sash and making and hanging storm doors, means a busy time for the jobbing carpenter.

## The Reason

"Why don't you brush your hair?" asked a man of the boy with the frowsy hair.

"Ain't got no brush."

"Why don't you use your father's brush?"

"He ain't got no brush."

"No brush? Why hasn't he a brush?"

"Ain't got no hair."

# A New Idea on the Exhaust Problem

## Some Suggestions from a Manufacturer on Exhaust Systems which Cuts Down Consumption of Power and Simplifies Piping

Geo. H. King

Every manufacturer in wood-working lines has to face the problem of installing some sort of equipment for looking after the waste matter that is inevitable in the operation of wood-working machinery.

Many systems in vogue to-day are proving unsatisfactory and costly in their up-keep. In the first place the consumption of power in the operation of an average system is a matter of very considerable importance for the simple reason that the power required is often a very serious drain and an impediment to the efficiency of the wood-working machines themselves. The writer knows of numerous factories where all the way from 30 to 50 h.p. is consumed daily in the operation of the air cleaning systems installed. Power means money as every manufacturer knows, who has to foot the bills and the writer of this article being a manufacturer himself and being confronted with these facts set himself resolutely to work to overcome some of the difficulties presenting themselves in this phase of the manufacturing business

After some thought the possibilities of the Vacuum system revealed themselves to the writer and as a direct result he had installed in the company's factory at Woodstock a system unique in itself and having the distinction of being the only one of its kind in existence.

The first matter that received attention was the piping which in most factories is sadly neglected and completely out of proportion in a great many instances, to the work it is required to do. Having gotten the conductors properly arranged and all entrances to main pipe carefully made so as to produce no cross-currents and consequent stoppages so common where these details are lacking, the next point was the construction of the Vacuum Chamber itself. This was made easy by our intimate knowledge of the action of air and the inculcation of the main principles involved in the construction of our vacuum cleaners.

Now as to means of exhausting the vacuum chamber to produce the necessary suction required to deposit waste matter in chamber. This was accomplished by means of the original fan used on the old system, the result being simply that as the air was exhausted from the vacuum chamber it caused the air to rush in through the openings of conductors at a great velocity much greater than could possibly be produced by a direct pull on the fan. Once in the vacuum chamber which is divided in two sections by a partition, the shavings and dirt once deposited in the receptacle where there is no air current, stay there, and the fan is not subjected to the extra and unnecessary task of driving the waste matter up and into the usual circular arrester. The enormous advantage of this one feature in the saving of power consumed will at once be apparent to one who has given the matter any thought. The reason being simply that it requires more power and is a greater strain on the fan to drive the shavings etc. up to and around the arrester than it does to attract them to the fan. As is well known nature abhors a vacuum and the air rushes practically of its own accord to take the place of that air which has been exhausted from the vacuum chamber by the fan. Then the gratifying part is that the fan is not required to move this mass of refuse through itself and as stated before on to the arrester.

It is a well known fact that air and any dense matter cannot occupy the same space at the same time and the fact will reveal itself to a close observer that when large quantities of shavings are passing through the fan that the amount of air stirred by the fan is appreciably less just at the very time when it is required the most. It will therefore be apparent that when this matter does not reach the fan but remains in the vacuum chamber that the fan is always running at its maximum capacity so far as air disturbance is concerned and with the heavy load of lifting and forcing shavings, etc. through and beyond itself cut off, a very great saving in power consumption is the result.

The main points of advantage of this system briefly ennumerated are these.

First: A greater and steadier suction is produced at the machines.

Second: The shavings are all taken care of by the vacuum chamber and held there.

Third: No shavings are deposited on roofs of buildings, lumber piles, etc.

Fourth: The chamber being divided into two compartments, it is possible to clean out and burn refuse in a perfectly still atmosphere which is a distinct advantage over the system now in vogue.

Fifth: The vacuum chamber being constructed of concrete with metal ports is absolutely fire proof as fire will not burn in an air tight compartment where the supply of oxygen is cut off.

In conclusion the writer of this article realizes that it is a difficult matter to set forth all of the advantages of this system in an article such as this and invites correspondence from those manufacturers who desire to change their present systems and install one on the lines that are here suggested.

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## The Question of Speed and Fixed Knives on Four-sided Planing and Moulding Machines

Looking at the question broadly, from a machinist point of view, there is no doubt that men who say that fixed cutters are no use unless on machines that cannot stand a feed of 200 ft. and upwards know what they are talking about. We have only to look at a scraping machine that is running a bit slow to see the effect. It only raises the grain and makes a rather doubtful finish, especially on softwoods.

The fixed cutter is only intended for very high speeds (the faster the better).

Although I agree with a friend's suggestions to "spin our heads a bit faster," I do not entirely agree with his comparison of a spindle to a four-cutter. He argues that if a spindle machine can run at 7,000 with only the fourth of the weight of metal to it than what could be in a four-cutter, why cannot we greatly increase the speed of the heads on a four-cutter?

That may sound feasible enough, but "I ha'e ma doots." In the one case we have only the spindle revolving, and a vertical one at that. The pull is all against the frame, is also low down, and there is only a small space between bearings. Furthermore, the cutters are light, and almost always perfectly balanced, so there is no reason why it should not run well at 7,000 revolutions per minuate or over, providing the bearings are in good shape. With the four-cutter or moulder it is entirtly different, to my mind, especially as regards the top cutter-block (which is usually the most important). In most cases this is not part of main casting, it is simply bolted on to the bed of machine; you have perhaps a heavy wide belt to it. which causes a fair amount of vibration to take place, even running at 4,000, so much that I have often seen and heard of cases of the top cutter-block dropping while running. It is almost impossible to tighten the slides enough to guard against this (in some makes) of moulders.

We machinists would only be too pleased to "spin our heads a bit faster" if the construction of the top cutter-head frame would permit us. Many of us have to consider the quality of the work a lot more than pure speed.

It is not always wise to run large heavy mouldings in the top speed, especially if they are to be cleaned or sandpapered by hand. It would be more economical to feed them slower and get a good finish.

One man in his notes referred to the suitability of bearings for high-speed journals. That, to my mind, is where the trouble lies. It is nonsense to expect the ordinary bearings to stand the racket of 7,000 or 8,000 revolutions per minute for any length of time. We must have something better, so why not have the best we know of. I mean ball-bearing bushes of ample length, with good provision for lubrication, to ensure them keeping cool when buzzing at 8,000 or so.

One other point occurs to me, and that is the speed of the belt. Are we not jumping out of the frying-pan into the fire, eh? 5,000 ft. per minute has always been considered the maximum speed for single belts, and it has to be a good belt to stand that speed. But should we increase the speed of our cutter-heads to 8,000, we should have our belts running at 12,000 ft. at least, which is considerably in excess of the limit laid down for our guidance by engineers and belt manufacturers alike.

Perhaps I have gone a little wide of the original question, but one thing leads to another, and I like to see where we are going to land if we increase our speeds to such an extent. I hope some of the machine builders or belt manufacturers will consider the matter,and see what they can do to help us in our trouble. Speed is what we want. How can we obtain it?

Perhaps we may be in the same predicament as the captain on a canal barge who wanted more speed.

Let's have more speed, the captain cried,
For we for time are pressed.
The engineer, "from the bank," replied:
The 'orse is doing his best.

—Spokeshave.

# Standarization of Matched Stock

## Movement Meeting with the Unqualified Approval of Those Whom Change Most Interests

The campaign started by the Canadian Woodworker for a standard system of running matched material and stock mouldings has aroused the keen interest of Ontario mill men who admit the neeod of reform. It is altogether likely that trey will co-operate and arrange for the standardization of this line of work.

Of course there will be found a certain few who will not be inclined to fall in line with the idea. These are planing mill men who take building contracts and machine their own work, and engage in supplying material to men who are builders only. These men are the ones who would benefit most by a better system; a system that would do away with much loss of time and considerable trouble. For instance, a man who has been in the contracting business for a long time showed us how he takes care of the left overs. He keeps all the flooring in the yard under cover. The sheeting and stock moulding are kept in the shop. When any of this class of material is left over from a contract it is all placed in different piles or racks. And to make certain that there will be no mistake in future handling he marks each lot with either one or more cross marks.

This man is a good buyer and knows how to make close estimates—but even at that he always has more or less stock on his hands. His case is typical of many other builders. They are looking to the mill man to relieve them of this waste of time and trouble. It seems to us that the mill man will not dissapoint them.

It will take some time to bring about the new system, but the movement started by the Woodworker is well under way, and any further assistance this paper can render in the matter will be furnished gladly.

We have received a large number of letters from manufacturers doing business in different section of the province, some of which we publish. We should like to publish more of them but lack of space paevent our doing so.

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The Canadian Wood Worker,
Toronto, Ont.

Gentlemen,—Yours of the 3rd inst. re Standard factory material. It impresses us that it will be a very useful feature of mill business if your plan can be carried out successfully. We do not deal very much in stock material, but your idea is alright.

Yours truly,
The Pringle Co.,

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Canadian Woodworker

Dear Sirs,—In answer to your enquiry re Standard flooring and moulding I would say that I think this is a needed reform. It will benefit both the builder and the owner and will prove a saving in time and money and a great convenience.

Yours truly,
W. A. King.

Ed. note: Mr. King is one of Toronto's best known builders.

# Timber of Incaluable Value Abandoned on Northern Shores

## Wanton Carelessness Responsible for Waste that Must Nearly Equal Fire Loss — Scope for Investigation

By "The Observer"

Every year on the river banks of the timber country of the north, there is left enough logs to supply the timber needs of a big city.

It is popularly supposed that the river drivers never leave a log behind them on the spring's run of timber, but this is an impression born of the stories in novel form of lumber jacks and river bosses. The picture shows a small section of the shoreline of Lake Temiscaming, one of the biggest lakes in the north of Ontario, being about seventy miles long. All along the shore of the lake, and in many places the shore is lowlying and sandy, are thousands and thousands of logs. They are the biggest and best that will ever be cut in the north, and some of the logs that lie rotting along the shore are, or were, worth eight or nine dollars each. The millions of feet of lumber these unwanted logs would cut into is beyond estimation.

The view shows part of the lake beach on the Quebec side, opposite Haileybury. It shows only the logs at the waters' edge. Back a hundred feet from the shore dense swamp grass and thick bushes grow, and hidden in these, in spots almost burried in the mud or sand, are just as many almost as can be seen on the flats.

A few miles north, at the head of the lake, where the Upper Ottawa flows into the lake, which is geographically but a broad and deep widening of the river, is a flat that is nearly a mile in width from the water to the high bank. This wide strip of sand and brush extends for miles along the top of the lake. It is literally covered with logs, so close that one can walk along them for hnudreds of yards.

The logs that line the shore have been accumulating for years. Some bear signs of being newly cut, others, away inland, are old and nearly disintegrated. In the twenty or thirty years since they were left on the shore of the lake, they have become almost buried in the sand.

One old pioneer of the lake declared that one-tenth of the annual cut on the Upper Ottawa is left upon the shore. The logs are brought down the lake in the spring and early summer when the water is high, in great rafts. But sometimes these rafts encounter swift gales which break them up and cast their many parts high upon the shores. The logs could be rolled back into the water and collected with little trouble and without much cost if that work were done at once, but the timber firms find it more politics to use the energy which that work would require in cutting more timber in the woods. They take a chance on the water in the lake rising and floating off the logs, but every year for some years the water in Lake Temiscaming has sunk lower and lower, and every year the logs have become less recoverable. A dam that is nearing completion at the outlet of the lake may raise the water sufficiently to float some of the logs but most of them are engripped in the sand.

It is a fearful waste of timber, one of the worst that the north country can tell of, and yet if prompt action were taken, much of this timber, for a large percentage of it has not reached the "shaky" stage, could be saved. A small gang of men armed with peevies, and assisted by horses, could drag most of the timber into the water where they could be rafted up. They could then be towed to some nearby town, such as Haileybury, where there is already a mill, and cut into lumber.

The waste is so apparently important, and so easy to overcome, that something should be done.

# Noticed on the Editor's Travels

## Untimely Delivery the Cause of Much Friction—Use of the Thin Steel Knife is Becoming General—Inlaid Work on Doors and Panels

I was talking to a manufacturer and planing mill man the other day when he was called to the phone to answer a customer who enquired when a bill of material he had ordered was going to be sent to the job. I heard the answer, which was, "when your building is dry."

Naturally our conversation turned on the subject of, as my friend put it, the neglect of some builders to provide proper accommodation for building material"—especially if kiln dried, finished stock, joinery and such like. And when he appealed to me to take the matter up and call the builders' attention to it, I very reluctantly consented, because I know the builder is not always the one to blame.

He certainly isn't to blame when a teamster reaches a job after working hours with a load that was expected two hours before, and finding the building locked up, dumps the load on the most convenient spot—right in the open. Should it happen to turn out to be a wet night the material will be badly mussed up by the morning.

Then the builder gets the mill man on the phone and tells him in language, not choice, perhaps, but strong enough to make himself clear, just what he thinks of him.

But fortunately for the trade there are not many mill men like him. He is in a class by himself. A class of mill men who have a habit of sending out work as soon as it is finished. They find it so much less costly to ship direct from the machine or bench than to hold it until the builder is ready to receive it.

So it is pleasing to be able to say that the average Canadian manufacturer feels that he has a personal interest in the product of his plant—an interest that does not cease until long after the products have been delivered and paid for, and he has a right to insist that his customers plan for the proper care of material when delivered.

So I say here, as I said to my friend who first mentioned the subject, it is one that concerns one as much as the other, and only requires the exercise of a little judgment on the part of each.

Let the mill man hold all work that requirs shelter until the builder can provide it, and the builder also should be expected to provide that shelter as near as possible to the time the contract for delivery mention. The mill man cannot be expected to hold material too long. Space is often precious.

Just a little thought for each other will go a long way in preventing those little differences that arise between maker and user. You may smile at mention of the golden rule, but it's a profitable one to follow in any business.

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It is fast becoming the practice to use thin steel knives for planing and surfacing lumber. But I find that some mill men hesitate as to which is the best method of using them. Some prefer the square head with the thin knife, and spring steel back. And others the complete heads of which there are a large variety to choose from especially designed for the purpose of surfacing different kinds of lumber, both the hard and soft woods.

When thin steel knives were first introduced, machine hands experienced more or less difficulty in getting the best results, as the method of grinding is somewhat different from that employed in grinding the old style thick knife. But the woodworker knows now how to take care of them and the thin steel knife is no longer considered in the light of an experiment. Its use is becoming more general every day. It is only a question as to which is the best head to use in cases where all kinds and grades of lumber have to be worked.

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When there is any doubt the best course to take is to consult the makers of whom there are a number who are furnishing heads and knives to suit all purposes.

During the past few years a great demand has sprung up for inlaid panel work, and to-day many manufacturers of door and interior trim are making a specialty of this line.

Some splendid examples of inlaid work were seen recently, being several styles and designs of doors and panel work. One door noticed particularly was a slab door faced with plain red oak finished in the natural. It was inlaid with ebony and English white holly. This style of door is likely to become popular here.

Other work observed was some mahogany panels. The grain of which had been beautifully matched, serving to bring out the wonderful charm possessed by this wood, and its appearance was made still more handsome and pleasing by the artistic inlaying of other woods.

Up to a few years ago inlaid work was mostly seen in period furniture and railway coaches. To-day many of Canada's rich men are building homes for themselves—handsome homes they are, too. The architect, having full play, and not being confined to a few thousand dollars, more or less, succeeds in creating some splendid designs of interior trim.

Most of these designs call for a certain amount of inlaid work.

Thus we find the carpenter called upon to perform work that was formerly taken care of by the cabinet maker.

We also find that many carpenters are becoming highly skilled. The work is light and interesting, but requires a certain amount of ability with a nice conception of a good clean job.

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### Natural Gas Supply of Ontario

The County of Welland and adjoining County of Haldimand furnish most of the natural gas in Ontario. There are about 500 producing wells, come of which furnish 1,500,000 cubic feet daily.The depth of the wells ranges from 550 to 3,000 feet. Prices for gas are 15 to 45 cents per 1,000 feet, according to quantity used. Gas is piped to Hamilton, Niagara Falls, Ontario, and as far west as Brantford and Paris. Farmers and country villages are supplied at retail prices, while ironworks, smelting works, and other manufactories in Welland are supplied at wholesale rates. It is estimated that over 30,000 feet are produced daily in this district.

# For the Maker of Wooden Measures

## H. S. Sackett of the Office of Wood Utilization, Forest Service, Gives History of this Branch of Wood Using Trade

Many sizes of wooden vessels intended for measuring commodities are made in the United States, but most of them are some division or some multiple of the bushel. A measure of that capacity in the United States is understood to contain 2150.42 cubic inches. It was borrowed from the Winchester bushel in England. The measure will hold nearly 78 pounds of water. The name, but not the measure, has come down through the nations of western Europe from Greece, where the word simply meant "box."

It is not so much the measure itself as the vessels made use of in measuring that are under present consideration. Different customs prevail in different parts of this country as to the size and name of the vessel employed in measuring commodities. In some localities, as in and about Washington, D.C., the peddler who sells by retail takes the peck as a standard. That is one-fourth of a bushel. He has his quarter-peck, half-peck, two-peck, and four-peck vessels. In San Francisco the very word peck is unknown, and the bushel is little more than an abstract quantity used in a sort of aglebraic sense. Whatever is measured there goes by the pound. Local customs prevail in many regions of the United States. The moral of it is that a manufacturer of measures must know the market for each kind. For instance, the kind he would sell in Ohio would be as much out of place in California as snow shovels would be in Panama.

In some regions, custom sanctions glaring inconsistencies. The seller of corn, for example, if he metes it out by the bushel, is permitted to "stroke" the measure. That is, he fills it exactly level full and no more, and if he goes to law he can collect on that measurement. But if he is selling apples, potatoes or turnips and undertakes to "stroke" the measure, he immediately has an irate customer on his hands, and if he is haled before a justice of the peace, who takes the custom of his neighborhood as law, the seller is punished for attempt to swindle. He must give heaping measure when selling commodities of that kind.

There is said to be a court decision in some of the old and musty law books of Virginia, where a buyer of salt had to pay costs and damages because he "kicked the bushel." Salt was then expensive, and a bushel measure level full sold for $4. It was the custom to pour the salt slowly and gently into the measure until it was full, and it was then "stroked"—that is, if the salt was heaped up, the excess was carefully scraped off. On the occasion in question, the customer stood by and watched the vessel fill. When it was "stroked" he gave the measure a kick. The jar caused by the impact of the foot settled the salt a couple of inches, and a dispute arose as to who was to stand the loss. The customer threatened personal chastisement upon the seller unless the vessel received enough additional salt to fill it, and the merchant, under protest, complied with the demand, and went to law for his remedy, and won.

It thus becomes that the size of a measure may be regulated by law, but local custom has a good deal to do with determining how much such a measure will hold.

The different dry measures generally in use in this country are the bushel, half bushel,, peck, gallon, quart or pint. The smallest two are seldom made of wood, but the others usually are of that material. Many vegetables are bought and sold by the barrel. The custom of the place determines the size of the barrel, but the matter need not be further considered here, since barrels are never made simply as vessels in which to measure commodities, but they are primarily containers in which to ship articles, and if such a vessel is used for measuring it is only for convenience. The great volume of grain bought and sold in this country is never actually measured, but is weighed, and the quantity in bushels is calculated.

The bushel measure is less frequently seen than the half-bushel. The former, when full of grain or other heavy material is too heavy for convenience in handling, and its half size is preferred. The largest use for these measures is in small stores and country mills where retail business is carried on. In transactions of that kind the measuring is actually done, and quantity is not estimated from the total weight. Though the number of wooden measures made and sold yearly is now greater than ever before, the use of such vessels was once comparatively more frequent than at present. When country mills were grinding grain everywhere, and enormous mills were rare or unknown, the half-bushel and the gallon measures were nearly always in use. The half-bushel vessel measured the customer's grist when he took it to the mill to be ground, and the gallon vessel, called the "toll dish," measured out the part of the grain accorded by law and custom to the miller for grinding the rest of it. Custom and law were not the same in all states and localities, but the practise of taking one gallon as toll for each bushel of grain brought to the mill was quite general. In some states it was lawful to exact more toll for grinding one kind of grain than another.

The toll dish was a highly important vessel. With it the miller measured his income. It is therefore somewhat remarkable that law and public sentiment in many states in early times left the toll dish entirely to the regulation of the miller himself. There was usually a statute somewhere in the books specifying that a miller might take so much toll for grinding so much grain for a patron of his mill; but seldom was there any officer or commission charged with the duty of inspecting rural mills to see if the laws were obeyed. In many instances the miller made his own half-bushel measure and also his toll dish, and as likely as not they were square boxes constructed without any exact mathematical measurements. In nine cases out of ten the miller was not sufficiently expert in figures to make use of the cube root in determining how large his toll dish should be. If he employed a neighboring cooper to make a circular dish, the probabilities were largely increased that the dimensions would not be mathematically correct.

That the question of the size of the measure in which the miller scooped his toll from his neighbor's grist was of considerable public interest is apparent from the frequency with which the subject was men-

tioned in old-time arithmetics, such as Pike's. Many a school boy in the log school house has puzzled his struggling brain to work sums in which a miller is supposed to have a toll dish a little too large, and thereby accumulate dishonest gain. The school boy's task consisted in finding out how much the miller made by his rascality.

It might be supposed that steps would be taken everywhere to see that the miller's measures were not too large or too small; but as a matter of fact, about all the inspection that was done was such as suspicious patrons of the mill bestowed out of the corners of their eyes while the miller was scooping out his toll.

In most of the eastern states millers were exempt from jury duty, and it was quite a common belief among country people that the exemption was due to suspicion of the miller's dishonesty—that he might have a toll measure too large, or a half-bushel measure too small, and for that reason was liable to indictment. Many a miller supposed that his exemption from jury duty was a condemnation without a hearing, and that a cloud of suspicion constantly rested upon him. The true reason why that highly important servant of the public was exempt from jury duty embodied compliment rather than condemnation or disparagement. Millers were relieved of the necessity of serving on juries because they were required at their mills to grind grain for the people, and for the same reason they were generally exempt from militia service.

The days of the homemade wooden measures are over. The different sizes are now accurately made in shops and factories. The usual sizes in wood are the bushel, half-bushel, peck, gallon and half-gallon. Some are made double, or two measures in one. When one end is upward it may be a peck measure; and when turned the other way it is a gallon.

Two kinds of wooden measures are in use nearly everywhere, one made of staves, with strong bottom; the other of bentwood, a single piece forming the whole vessel except the bottom, and perhaps a band around the rim to strengthen it. When staves are the material of construction, many woods are available, but pine is widely used. Chestnut, chestnut oak, white oak, red oak, birch, ash, elm, basswood, yellow poplar and many more are found satisfactory.

Many metal measures are made, but it has not yet been able to drive wood from the place which it has long held, nor does present tendency indicate that it will ever be able to do it. Wood has served mankind in this capacity during thousands of years, and it will continue to do so. The measure constructed of staves has given place to a considerable extent to the bentwood style. The latter is lighter, and fully as strong. Any straight-grained, tough, wood will answer, and no one in particular can be pointed out as best. Among those frequently used are red gum, white oak, beech, birch, hickory, maple, ash and elm. An important requisite is that when the wood is bent, and after it is bent, splinters will not rise upon the outer or inner surface. If greater strength is required than is afforded by a single sheet of veneer, the desired purpose is attained by using thinner sheets, and glueing them together three-ply. The grain of the middle layer runs across the grain of the two surface sheets. This prevents splitting, and reduces warping to a minimum.

## Adaptability of Oak Flooring

Very often architects and contractors use the clear plain (first grade) of oak flooring in many rooms where the select plain (second grade) could be utilized as well, at a saving of about 25 per cent. in the cost. Select plain (second grade) makes a floor just as serviceable as the clear plain and equally as durable, the principal defect in this grade being sap, which in oak is not considered as serious a defect as in other woods, on account of the tannic condition. The difference in the shading is easily lost sight of in the finishing, by application of a golden oak filler to blend the light and darker pieces. Such a finish would make it very difficult for even an expert to distinguish it from the clear ,first grade).

The select plain (second grade) will fill every requirement where a medium priced floor is desired, whether it be in apartment houses and such character of buildings, residences, stores, public buildings, club houses, residences and hotels. This class of building requires a high-class and serviceable floor. Select plain is highly recommended, as it gives an artistic and durable floor at a very reasonable cost.

Some of the best homes, costing from $7000 and up, are now using the select plain in the upper floors and very often the entire residence uses this grade throughout.

A little care on the part of the floor layer with this select plain (second grade) will insure a job almost as good as if the clear (first grade) was used. Badly discolored pieces should be utilized for places under the rugs, closets, and other out-of-the-way places.

The select plain oak flooring is manufactured in the 13-16-inch thickness and 3-8-inch thickness. The 3-8-inch thickness select plain without a doubt makes the most economical floor that can be bought. It is tongued, grooved and matched. It can be secret nailed and when laid has the appearance of heavy flooring; ⅜-inch thickness should always be laid over a subfloor. In old homes it can be laid over the old floors and in new homes over a cheap subfloor. The 13-16-inch thickness makes the most substantial floor, but it is 30 per cent. more expensive than the ⅜-inch thickness. Oak flooring can be had in two colors, white or red. The preference for either, simply resolves itself into a matter of taste, as both have about the same lasting qualities. The white is often preferred, because it runs more uniform in color.

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## Furniture for Egypt

A German consular report draws attention to the opening which exists in Egypt for drawing-room, dining room, bedroom and office furniture. There is a small quantity of pinewood furniture made in the country, which, though not very durable, is bought by the poorer classes, but these articles cannot be compared with those of European production. Furniture of good quality is required, specially manufactured for the large apartments of Egyptian residences, and consequently much larger than the articles ordinarily used in this country. The French style is stated to be very much in favor with the natives, with the addition of brilliant decorations such as glass, etc. Exporters are recommended to send a traveller to study this market on the spot, and to gain information as to the special requirements of the country.—(London Chamber of Commerce Journal).

# With the Machinery Manufacturers

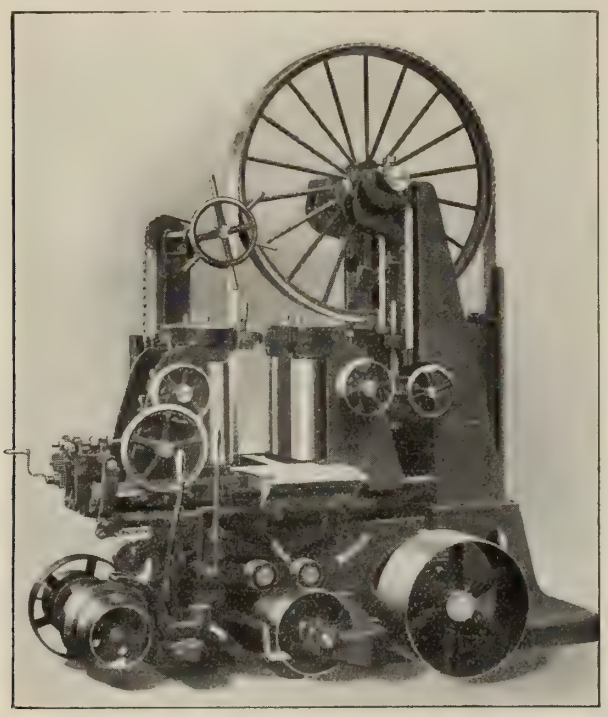
## A New Ball Bearing Re-Saw

Readers of the "Canadian Woodworker" will be interested in a new 54-in. band re-saw recently added to the American line. The illustration shows a view of this machine from the operator's side.

The manufacturers call this tool their No. 111, and claim it to be the heaviest 54-in. band re-saw on the market. In a circular they set forth the following points of merit:

The upper wheel is hung on a straight-line-knife-edge balance, and runs between bearings. This form of construction, they claim, takes a very sensitive strain and a well-balanced rigid support for the upper wheel.

The feeding mechanism is driven by open belt and cone pulleys friction clutch. The only gears used are the ones on the top of the rolls, which are encased. This makes a very strong feed, which the makers claim is far more durable and more effective than any variable friction feed can be, and accommodates six changes, each of which can be thrown into operation instantly.



Although the illustration does not show it, the machine, if desired, can be equipped with Hess-Bright ball bearings for both the upper and lower wheels, which insure a light running tool which will accommodate a higher rate of feed on all kinds of work, than the ordinary babbitted bearings used on band re-saws regularly.

Other points of merit are mentioned in the circular and persons interested may obtain full information by addressing the American Wood Working Machinery Company, Rochester, N.Y.

## The White Automatic Turning Lathe

An improved automatic back knife turning lathe that is attracting a great deal of attention is one made by Thos. White & Sons.

This machine is very substantially built, and each part is carefully fitted together.

There are many interesting features about this machine that will appeal to the manufacturer of pick and hammer handles, as well as all varietys of fancy wood-turning, such as balusters and chair work, etc.

Some of the improvements noted are an automatic self-centering device which places the wood between the centres without stopping the machine. The operator will certainly appreciate this. Also he will appreciate the advantage of being able to make rapid adjustments of the knives to compensate for wear. The saddle or carriage has recently been re-designed and fitted with paralleled motion for operating the nuts.

The arrangements for roughing are absolutely perfect, being arranged so that the tool is lifted clear of the work when returning. It is well to note that on the number 4 and 5 sizes a new system has been adopted which permits of roughing 6-inch squares as easily as small sizes.

A three-speed cone is fitted for driving the feed, which, with a variation of speed in the headstock enables the machine to turn all kinds of lumber. The builders of this machine recently supplied a lathe for turning billiard table legs, roughing the material for same with the bark still upon it. This is a severe test, and it is pleasing to note that the roughing system stood the test in a highly satisfactory manner.

The extras that go with the machine are two sets of centres, two knife bars, three thimbles, or dies, one set of roughing tools, suitable countershaft with balanced pulleys, two speed cone and belt striking gear,

The machine is made by the Thos. White & Sons, Ltd., engineers, Paisley, Scotland, who will be glad to furnish further information.

## The Ontario Sash and Door Association Meeting

The Ontario Sash and Door Association are holding a meeting, November 17, in the King Edward Hotel, Toronto, and we hope to be able to give our readers, in the December issue, a report of the proceedings.

## Facts About Belts that All Machine Hands Should Know

Users of belting are frequently misled in the amount of work which should be expected of a good belt, and as a result the belt is put to an excessive strain, to the scrap heap in t short time and the quality of the belt condemned. This condition of affairs is due in part to incorrect rules for calculating the power of belting.

The power of belting is determined from the number of foot pounds which can be transmitted from one pulley to another and is arrived at by multiplying together the effective pull in pounds per inch of width, the width of belt in inches and the speed of the belt in feet per minute, and dividing the product by 33,000.

The safe tension of a single leather belt is considered to be about sixty pounds per inch of width, and the mistake is often made of using these figures or thereabouts instead of the effective pull when determining belt power. The effective pull or the force which tends to turn the pulley is the difference in tension between the slack and driving side of the belt, and it depends to a great extent on the arc of contact between the belt and the smaller pulley. To find the effective pull it is necessary to determine the number of degrees in the arc of contact, which can be arrived at by multiplying the difference between the diameters of the pulleys in inches by four and three-quarters, dividing the product by the distance between the pulley centres in feet and subtracting the quotient from 180 deg. The allowable effective pull of a single belt with 180 deg. contact on 24-inch pulleys is considered to be about 40 pounds per inch of width, so that, having found the arc of contact, the effective pull can be determined by multiplying the arc of contact by 10 and dividing by 180.

For example, let it be desired to determine the effective pull of a 6-inch single leather belt, travelling around a 24-inch and 36-inch pulley, the centres of the pulleys being 18 feet.

Solution

$$\text{Arc of contact equals } 180 - \frac{12 \times 4\frac{3}{4}}{18} = 176.84^\circ.$$

$$\text{Effective pull equals } \frac{176.84 \times 40}{180} = 39.29 \text{ lbs.}$$

Now let it be desired to find the power this belt should transmit with a velocity of 2,000 feet per minute.

Solution

$$\text{Horse power equals } \frac{39.29 \times 6 \times 2000}{33{,}000} = 14 \text{ H.P.}$$

Double belts are less pliable than sinble belts and the centrifugal force is greater, consequently the contact with the pulleys is less, furthermore, the tension is seldom increased proportionately, and for these reasons double belts should not be expected to transmit more than 10/7 the power of single belts. This power could be increased by running two single belts on top of each other, because they are more pliable, they give a better contact and increase the effective pull. By this method smaller pulleys can be used and the life of belting prolonged. Four-ply rubber or cotton belts are supposed to be equal in strength to a single leather belt and six-ply equal to double leather belt.

## When Planers Pull Hard

When a planer pulls hard and seems to take more power than it should do not assume right off the reel that the knives are dull or that you have taken too heavy a cut, but investigate and analyze it.

If the knives are requiring too much power this will generally manifest itself in a strain on the cutter head belts. Even then, though it may not be due to dull knives or deep cutting, it may be due to tight journals or to any one of several causes. The knives may not be ground slender enough and the heel of the bevel may be striking. They may be too close to the lip for the kind of work they are doing, thus making the cutting unnecessarily heavy. In fact, there are a number of things that may use up power, and what has been suggested here is only a few of them.

There is really more of what might be termed unnecessary power used up in the feeding mechanism of the average planer than anywhere else. Sometimes this is hard to avoid, because it is essential to hold the stock firmly as it passes through the machine to get good work.

One can minimize the power required though, by a careful anylitical study of his machine and its adjustment and by proper lubrication. Sometimes the pressure bar may be unnecessarily tight, the feed rolls may be coming down heavier than is really necessary, or the stock may be running so flat on the bed plate that it drags hard. Possibly it can be improved with a little lubrication on the bed. Anyway, all the time, there is room to study these things carefully, every detail of them. It will not only help save power, but it is a great aid to understanding thoroughly the work of the machine, and frequently in the process of eliminating waste power one will also be led into doing better work with the machine.

So, when your planer pulls heavily, put on your thinking cap, get your analytical powers to working and go over it carefully bit by bit. Take into consideration every detail of the condition and work of both the machine and the knives.

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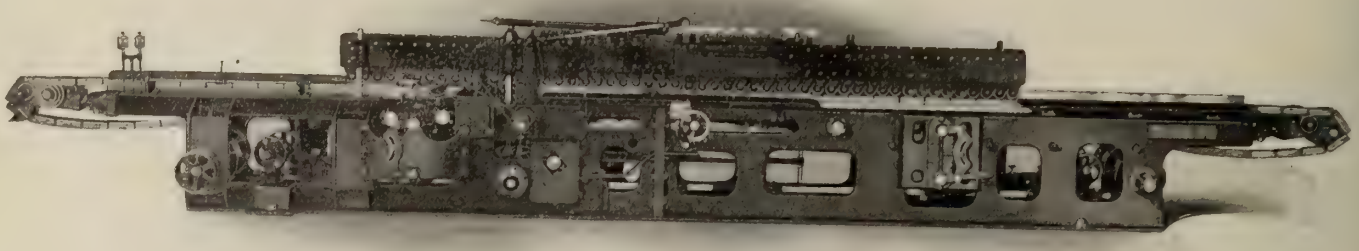
## How Fire Lurks in Waste! Simple Explanation of Spontaneous Combustion

One of the things the average man knows little about is the chemistry of fire. He hears occasionally of fires from spontaneous combustion, but his ideas of the process of spontaneous ignition are vague; and his knowledge of the substances or combination of substances susceptible to such ignition is limited. It is difficult to acquire the knowledge outside of the chemical laboratories; for in the common run of experience unless fires from this cause are discovered at their inception they soon destroy all evidences of their origin. Such fires are commonly reported as "probably incendiary," or of "mysterious origin."

The chemistry of spontaneous ignition is simple. Decomposition is a slow combustion. The human body slowly burns to ashes in the grave. Oxygen uniting with carbon produces heat. If they unite rapidly enough, in sufficient quantities, the combustion is visible in flame. If they unite slowly, as in the decay of organic bodies, the heat escapes unnoticed. Rapid chemical action will start visible combustion as easily as the application of the torch. Vegetable oils spread over easily carbonized sub-



# We want You to Read this Letter

**Every word is a confirmation of what we have been trying to explain to you for months.**

Canadian Linderman Machine Co.,
Woodstock, Ont.

Gentlemen,—

Answering your inquiry of October 23rd, as to the merits of the latest Linderman machine which we have installed here, will say that we have found this machine to be in every way satisfactory and much more economical than any other method which we have used for making glue joints. Other jointing methods, and even the earlier types of the Linderman machine have failed to produce the perfect work which we get from the 1911 Linderman. The joints produced by this machine are practically invisible and their strength is beyond question.

In reference to economy, the fact that the narrowest strips can be utilized, where their presence is not objectionable, and the fact that the machine handles a large output with medium cost for glue and labor, makes it a very economical proposition.

Yours respectfully, National Casket Co.

# The 1911 Model Linderman Automatic Dovetail Glue Jointer

has exceeded the expectations of all those interested in its success. We knew there were many features to correct—much to improve but we hardly expected that all the old objections would be entirely overcome. The above letter is from a concern that is now using Three Linderman machines, the first installed over five years ago.

## Canadian Linderman Company Limited

**Muskegon, Mich.**

**Works at WOODSTOCK, ONT.**

stances, such as cotton rags, or waste will ignite the latter very quickly. The cotton fibre furnishes a sort of tinder. Animal fats, like tallow, butter and lard, especially if rancid, will ignite under conditions similar to the above, but they are not such great offenders as the vegetable oils—cottonseed, nut, castor bean, olive, and especially linseed.

An oily rag or oily waste never should be thrown into a rubbish heap. Many fires start in closets from such rags after use in oiling floors or polishing furniture; and factory fires are occurring constantly from spontaneous ignition of turpentine and linseed oil on rags and waste. There are not may men who give the same thought to this danger in their homes that they give to it in their factories, where metal waste cans with self-closing covers are generally provided. At the time of spring renovations, however, it is well to keep an eye upon the domestic establishment, with this hazard in mind, as servants are generally quite irresponsible. Products of petroleum such as kerosene, gasoline and naptha, although they do not ignite spontaneously, have a hazard of their own, and rags soaked in them should be carefully looked after. A house rule should be made that all greasy or oily rags be burned in the cook stove without delay.

# A Good System for Buying Veneer

That there are many points to be considered in connection with veneer buying goes without saying, but now and then some rather interesting points turn up that seem different. For example, here's one: A planing mill man who uses a fair amount of veneer in doing mill work, had an extensive job of interior finish on a store building, in veneer, involving the use of quite a lot of figured mahogany. In contracting for the veneer he took the details of the job and submitted them to the veneer manufacturer, who supplied samples to suit the architect, and in buying the veneer this planing mill man made his agreement that he would pay so much for veneer enough to complete the job. In other words, he bought the exact finished measurement and had the veneer man shoulder the problem of making allowance for and taking care of the waste.

This, of course, made safe figuring for the mill man, and the veneer manufacturer probably got enough for his stock to take care of the extra amount to trim and fit into the job. If a piece, or dozen pieces of veneer, for that matter, showed defects and not up to specifications, the architect was asked to pass on it before it was glued up, and it was returned to the veneer manufacturer. In that instance the whole thing worked very nicely, because both the veneer manufacturer and the veneer user were in the same city. How it might work if a veneer user should do business on this basis with a manufacturer in a different city, remains to be seen. Probably some in the trade have had experience with conditions of this kind and could tell us about it.

This instance is a reminder that there are two ways of buying veneer. One is buying for immediate needs and with a view to filling the need only; the other is buying veneer to get such lots of stock as can be used up to advantage. Which method should be followed probably depends upon the veneer user and his work. For a large piano manufacturer, it is naturally a better policy for him to buy in quantity such veneer as he thinks will turn out the best-looking pianos; that is, entire flitches or the entire batch of stock in some shipment of mahogany, all the product of burl or crotch, and so on. In the same way some furniture manufacturers could buy large quantities of a given kind of veneer, because it suits their business in a general way.

Then again, there may be other manufacturers who do not find it well to look very far beyond current needs, because their needs vary and they do not know just what will be called for next. These are left in a quandry occasionally when they want a little special-figured wood, whether to buy just what they need, or try to buy a quantity that will include not only what they need, but a lot of other stock, for the sake of getting a job lot of veneer. The general trend seems to be away from buying merely from hand to mouth, and it is probably well, where a veneer user feels at all justified, to inaugurate the practice of buying in anticipation of needs, instead of buying from hand to mouth, even though he may use comparatively small quantities at a time and the uses may vary a little.

There is such a thing as going back over the past year's work, then looking ahead and trying to anticipate the demand for next year, and lay in veneer that one thinks will be attractive, just as one lays in a stock of any other merchandise, then feature this veneer to prospective customers and strive to lead the procession, instead of tagging along and contenting one's self with filling every peculiar notion that buyers take. It may not be wise to risk too much on it at once, but it is a tendency that may well be followed. The users of smaller quantities may wisely cultivate the practice of buying in more liberal quantities of certain classes of veneer, instead of barely for immediate needs.

## Trade Enquiries

The following enquiries have been received from England and other countries relating to Canadian trade. The names of the firms and their addresses can be secured by interested parties by writing to the Enquiries Department, Canadian Woodworker.

Any of our readers who are answering the enquiries should not fail to forward references—particularly if bankers references.

1. **Agricultural machinery and implements.**—A South African company controlling about three million acres of land, is in the market for agricultural machinery and implements of all kinds, particularly of ploughs operated by petrol, and would like to hear from Canadian manufacturers. 1153

2. **Furniture.**—A South African shipper in London is in the market for hall tables, benches and verandahs, reading room chairs, and other furniture, and would like to receive catalogues from Canadian manufacturers. 1154

3. **Gasoline engines.**—A firm of engineers and machinery importers in Buenos Ayres desires to placed in touch with manufacturers of gasoline engines. Fullest particulars must be given in addition to quotations c.i.f. Buenos Ayres. 1159

4. **Furniture.**—A leading firm in Newfoundland would like to hear from Canadian manufacturers of furniture.

5. **Box shooks and boxwood cases.**—A South Arrican firm of indent merchants desires to be placed in communication with Canadian manufacturers and exporters of box shooks ad boxwood cases of all descriptions.

6. **Machinery.**—A Yorkshire firm of engineers manufacturing portable boring machines, circular saw-benches and other specialties, desire to increase the sale of this machinery in Canada, and would be pleased to hear from parties interested.

7. **Lumber; cedar shingles.**—A lumber firm in Speightstown, Barbados, would like to hear from exporters of lumber generally; and cedar shingles in particular.

## Treating the Forest as a Crop

The progress of the conservation policy of Canada, as applied to forest resources, depends more upon the forestry branch of the Department of the Interior than upon any other organization. Upon the technical knowledge and executive ability of the officers of the forestry branch depends the future of the forest on 16,000,000 acres of Dominion forest reserves, as well as upon the large area of non- agricultural forest land in Western Canada, which for the good of the country may yet be set aside as permanent forest reserves. In addition to looking after Dominion lands the forestry branch is now being asked by eastern land owners to furnish advice as to the best means of securing at the earliest date a profitable crop of timber on waste land or wood lots. The proper administration of forest lands requires a special knowledge of the trees best adapted to each region, of their uses, and of the markets. Further there is needed knowledge of the habits of all trees, especially of the merchantable species, so that it may be known how rapidly they grow, how they produce their seed, when and under what conditions the seed germinates, and in what way the seedlings and young trees are affected by their surroundings. Such knowledge is gained only by long study and experience. In order that the new Rocky Mountain forest reserves may be administered according to the latest scientific knowledge and the best experience, the forestry branch is now making detailed studies of the habits of the merchantable species of trees on the eastern slope of the Rockies in Alberta, and has sent one of the men in charge of the work to study the systems of forest management practised during the past few years by the highly developed United States forest service in the national forests of Montana. The United States foresters have spent large sums of money and availed themselves of the experience of many men in developing plans of lumbering which do not inconvenience the lumbermen but which ensure the protection and reproduction of the forest, and the Canadian forestry branch intends to benefit largely by their experience.

## Cedar Poles

It requires 190 years to grow a 30-foot cedar pole for telegraph purposes, but there are other poles which answer all purposes which are grown more quickly.

## What is a Bungalow, the Real Old Kind ?

In its very simplest form the true bungalow contains no more than an absolutely necessary number of rooms, has no attic, or second storey, and no cellar. Its characteristics are simple horizontal lines, wide projecting roofs, numerous windows, one or two large porches, and the woodwork of the plainest kind. In its most advanced type, with its more beautiful and sometimes elaborate interior finish, and with its up-to-dte built-in fixtures and conveniences making it entirely suitable to any climate, the bungalow is composite.

The development of the bungalow and its spread has been so rapid that its permanent popularity has been questioned by many. However, it is not a passing fad; this is proven by the fact that many of our low-cost frame houses are bungalows, and that the people of Canada are building more and more of them. The demand for them is increasing so rapidly that architects have had to meet it as best they could, whether they knew anything about the style or not. The result is that east of the Rocky Mountains the term "bungalow" has been applied to alterations of the cottage style and does not bear much of any resemblance to the genuine. The designing of an artistic bungalow, which will stand the test for time, requires fully as much skill and education along this line as any other style of architecture. The keynote of the bungalow of the best type is homelikeness and general attractiveness without being pretentions. All extravagance, fantastic effects, should be avoided. Fancy mill work and "ginger-bread" finish, either inside or outside, are not in keeping with the bungalow spirit. It is easier to say what bungalows are not than what they really are, because they are built in such a great variety of designs.

Its real origin, one must remember from reading Kipling, is in the English residence in India, the word being taken from the Hindustani, and the bungalow, as built in that country consisted of a one-storey structure usually raised a little above the ground and with an air space overhead for coolness. The verandah (also an Anglo-Indian word) was very deep, to shut the heat and glare of the sun out of the rooms, und often this extended around three sides of the bungalow.

To-day, the bungalow, especially in this country, would scarcely be recognized as such by the sunhelmeted English colonists of India, for it has taken into itself motives from Spanish mission, Japanese, and English cottage architecture, with original ideas and treatments by individual architects.

## Keeping Cement

Age is generally supposed to improve Portland cement if it is kept dry; in fact, one of the great faults of many brands of cement is that it is not allowed to age sufficiently before being shipped from the cement mills. If stored in a perfectly dry place, free from danger of dampness, there should be no deterioration due to age. If allowed to become damp, such will not be the case, and the effects of the dampness will show itself in a lumpy condition of the cement; if not actual hard lumps, there will be a tendency of granular coarseness due to the cement's taking up moisture, but insufficient to provide for crystallization. Lumpy or granular cement will show

weakness when made into mortar or concrete. It the cement was poor and had not been damp, it was due to improper mixing of the ingrdients in the mill.

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## Measuring Timber and Lumber

To ascertain the circumference of a tree required to hew a stick of timber of any given number of inches square, divide the given side of the square by .225, and the quotient is the circumference required.

Round timber, when squared, loses one-fifth.

To measure round timber take the girth in inches at both large and small ends, add them, divide by 2, which gives the mean girth; then multiply the length in feet by the square of one-fourth of the mean girth, and the quotient will be the contents in cubic feet. This rule is commonly adopted, and gives four-fifths of the true contents, one-fifth being allowed to the purchaser for waste in sawing.

To measure inch boards, multiply the length in feet by the width in inches, and divide the product by 12. The quotient will be the contents in feet. For lumber 1¼ inches thick, add ¼ to the quotient. If 1½ inches thick, add ½. If 1¾ inches thick, add ¾. If 2 inches thick, divide by 6 instead of by 12. If 2½ inches thick, add ¼ to the quotient and so on. If 3 inches thick, divide by 4. If 4 inches thick, divide by 3. If 6 inches thick, divide by 2.

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## Smallest Electric Motors

Tiniest of electromotors—weighing less than a quarter of an ounce—is the marvellous machine made by G. Trevet and presented to the French Academy of Sciences. It is a shunt-excited machine with a Gramme ring and takes 0.2 ampere of current at 3.5 volts. It is amout three-fifths of an inch high, with a shaft three-fifths of an inch long.

The field magnet coil has 600 turns of wire, one-five-hundredth of an inch in diameter. The armature, a quarter of an inch in diameter, is wound in six sections, and the 288 turns of wire have a total length of about six feet. The commutator, less than an eighth of an inch in diameter, has six plates, with six sheets of ebonite as insulation.

Each brush, consisting of two plates, is an eighth of an inch long by one-twenty-fifth inch wide and one-thirtieth of an inch thick, and is pressed against the commutator by a screw and spring. The steel shaft is only one-thirtieth of an inch in diameter, the bearings only one-sixtieth of an inch.

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A good file cleaner is a handy thing, but it is not an advantage when it leads a man into using an old file when he ought to have a new one.

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According to an estimate in the Railway Age Gazette, the cost of substituting steel cars for the present wooden cars is estimated at about $630,000,000. At the beginning of this year there were about 3,000 passenger cars in service in this country, built of all steel construction. The total number of passenger coaches is about 54,500 so that the number of steel cars is about 5.3 per cent. of the total. Of the cars constructed during the present year, 62 per cent. will be of all-steel construction, so that at the end of this year fully 9.3 per cent. of all passenger cars will be of steel, while 3.5 per cent. have steel under-frames. The percentage of wooden cars in service has dropped in the last three years from 98.2 to 87.2 per cent.

## Saws and Files

A dull saw may not be a sign of dull wit, as it may be due to hard work, but the using of a saw while it is dull is the sign of want of attention. A fairly good rule to go by is that of a dull saw being a dangerous saw. A dull saw will catch and kick quicker than a sharp saw, just by reason of its dullness. A few moments with a file may save some ugly jolts from a bench-saw or a boxboard table-saw, for instance. Where work has to be sawn by hand, sharp tools go a long way toward making it easier.

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A grinding wheel cannot be judged by its color. Several wheels of the same grit and bond may be of different colors, owing to the material used. The conditions in the kiln will also sometimes affect the color.

**Reliable Filer Wants Position**

Filer wants position in Saw Mill or Box Factory, could take care of Band, Band Resaws, Gang Saws and Circulars; strictly sober, references furnished.

**Address**

**Box E, Canadian Woodworker**

**FOR SALE—At a Bargain**

The following goods, as we have no use for them. Full line of wood working machinery, suitable for planing mill, furniture factory or any other kind of wood working establishment. Also exhaust or hot air fan. One Sturtevant pressure fan or blower. Two shaving fans. One drum sand-papering machine. Also wood and iron pulleys, shafting and hangers in all dimensions. Also drop hammer and dynamo and full outfit for silver planting. Also 70 h.p. steam engine and 80 h.p. boiler, both as good as new. Also brick factory equipped with engine, boiler and dry kiln, for sale, in good live town, centrally located in Ontario. Great snap.

**National Casket Co., 107 Niagara St., Toronto, Ont.**

**Broken Castings**

can be Brazed and made as strong at joint as other parts fully guaranteed. Work sent by Express returned same day as received.

**W. H. DUNNE,** 1492 Queen Street West

**TORONTO**

LEADING VENEER OF UNITED STATES MANUFACTURERS
RECOMMENDED BY CANADIAN WOODWORKER

National Veneer & Lumber Co.

Manufacturers of

**Quartered Oak Veneer**

West Michigan Street and Belt Railroad,
INDIANAPOLIS, IND.

H. A. HAGEMAN, A. E. HAGEMAN,
Selling Representatives

**Cincinnati Veneer Company**

Sawed and Sliced Quartered Oak Veneers
Rotary Cut.
Poplar, Gum, Maple Cross-banding.
Oak and Walnut Faces and Backs.
Veneer Sawed Thin Lumber.
Sliced Poplar 1/8 to 5/16 in.

CINCINNATI, OHIO, U. S. A.

**Ohio Veneer Company**

Manufacturers of
**Foreign and Domestic Hardwood Lumber and Veneers**

Importers of
Mahogany and Foreign Woods

Office and Mills:
**2624 to 2634 Coleraine Ave.**
CINCINNATI, OHIO

We Have Large Quantities
**Plain Veneers, Ready to Ship**

OAK
BIRCH
POPLAR
GUM
STANDARD THICKNESSES

**Walter Clark Veneer Co.**
Grand Rapids - Mich.

**WOODWORKING FACTORY FOR SALE**

To be sold as a going concern in the growing city of Vancouver, B. C., woodworking factory with lease of building, or will sell separately, one 8 in. four s ded sticker, one power mortiser, one tenoning machine, one single spindle shaper, one 20-in. jointer, one turning lathe, one elbow sander, one power drill, one 20 h. p. motor, one swing saw, one combined saw, one insulator pin lathe, quantity of shafting, pulleys, hangers, belting, etc.

Bettschen & Higgins Co. Ltd., 1261 Powell Street, Vancouver, B.C.

**WANTED**

Good, steady competent man, to take charge of small gang of men in sash and door department of planing mill, in one of the best towns in Central Ontario. Must do the laying out. State age and experience. Apply Box D, Canadian Woodworker, Toronto, Ontario.

THE
**Weatherly**
INDIVIDUAL
**GLUE HEATER**

Send your address and receive descriptive circular of Glue Heaters, Glue Cookers and Hot Boxes with prices.

**The Weatherly Co.**
Grand Rapids, Mich.

The
**PULLEN Wire-Lacing GAUGE**

Ends all troubles with WIRE-LACED BELTS. Insures perfect spacing of lace holes, perfect joints, and smooth running, long wearing belts. Instantly adjusted to any size belt, on either side or edge, and the holes punched through the Gauge quicker than without it. Pays for itself many times over in time and annoyance saved.

Mailed to any address on receipt of $1.00. Money back if you're not satisfied after trial.

**Leather Preserver Mfg. Co.,** 510 Munroe St. **Chicago, Ill.**

# From Coast to Coast

### Planing Mill Burnt at Fort William

The planing mill department of the Dryden Pulp Mill of Fort William, Ont., was consumed by fire. The place was entirely gutted, the machinery having been already installed, so that the loss approximates $10,000, which is fully covered by insurance.

The area of the fire was confined to the planing mill alone. Had it spread nothing could have saved the plant that is nearing completion. The work of rebuilding the mill will be commenced straightway, and it is the intention of the manager to have an even more modern one than that just demolished.

### Barrel Factory Burned

The barrel factory of the Lake of the Woods Milling Company of Kenora, B. C., which has a capacity of one thousand staves an hour, together with an enormous stock of staves for barrel construction, was destroyed by fire. Much of the company's flour will have to be shipped in sacks instead of barrels this winter.

### Lumbermen Complain of American Invasion

A delegation representing the Canadian Lumbermen's Association appeared before the customs board of Ottawa and complained of a violation of the Canadian customs tariff by United States lumbering interests. The tariff provides for free admission of rough lumber, while there is a duty on jointed and edged lumber. Complaint is made that American manufacturers join and edge lumber, and afterwards put it through a roughing process, with the result that it is classified as the rough article.

### Dissolution of Joint Stock Companies

Notice is hereby given that the following companies have dissolved:

The Alberta Sash and Door Co., Ltd.

The Woodhall-Davidson Co., Ltd.

### Sawmills Running at Night

The saw mills at Marysville, N. B., started to run by night and expect to run three gangs in the day time and two gangs by night in order to cut all the logs before the river freezes up.

### Lost Third Finger

William Hill, Hilliard street, while working at Blonde's mill yesterday had the misfortune to get his left hand caught in the gearing of a machine. The third finger was severed from the hand.

### Fire at North Bay

Fire which broke out at midnight destroyed the refrigerator factory of E. M. Bogart, North Bay, Ont., and the frame buildings belonging to Thomas Lafrance and John Connolly, used for warehouse purposes.

### Tool Factory Burned

The plant of the Thomas Pink Co., Ltd., of Pembroke, Ont., was almost entirely destroyed by fire. The loss will be in the neighborhood of $35,000 and is fully covered by insurance. The firm manufactured lumbering tools.

### Disastrous Fire at Melville

A disastrous fire occurred at Melville, Prince Edward county, when an evaporator, barrel factory, saw mill, and grist mill belonging to Mr. John R. French, fell a prey to the flames. Mr. French estimates his loss at about $15,000 and unfortunately he had no insurance.

### Fire in Lumber Yard

A $20,000 fire wiped out Dowser Lumber Yard at Englehart, Ont.

### $8,000 Fire at Kipling

The shed and limehouse of The Security Lumber Company, of Kipling, Sask., were burned down and the loss is estimated at eight thousand dollars.

### Trial of Darke v. Canadian General Electric Co. at Peterboro Assizes

The autumn Assizes opened at Peterboro, Ont., on Oct. 31, Chief Justice Sir Wm. Mulock presiding. The whole of the Court to Nov. 2 was occupied in the trial of Darke v. Canadian General Electric Company, an action for ten thousand dollars damages brought under the Workmen's Compensation Act by the widow of Hugh Darke, an employee of the company, killed while at work on June 15th. The jury returned a verdict for plaintiff, damages $1,800.

### Big Mill Closes

On account of frost in the river interfering with the movement of logs, the mill of the Lineham Lumber Company, of High River, Alta., closed down for the season. The mills had been running night and day since June 15 and made one of the biggest cuts in its history. One hundred men were employed.

### Death of Well Known Builder

Albert Price, building contractor, of Toronto, died from blood poisoning.

Twe weeks before he pricked his thumb and after working for a few days was obliged to remain at home and from there he was removed to St. Michael's Hospital, where he died.

Mr. Price was a building contractor and connected with the firm of Taylor & Price of East Toronto. He was in his 36th year and well known in the city.

### Lumber Company Incorporated

The Melville Lumber Company was incorporated in October, with head office at Melville, Sask., with capital of $20,000.

### Lumber Company to Change Name of Firm

Take notice that Skead & Company, Limited, are applying to the Registrar of Joint Stock Companies at Edmonton to have its name changed to "The Skead Lumber Company, Limited.

Reinforced concrete shingles are coming into general use. They are 50 pounds lighter per square than the best Bangor slate and 200 pounds lighter than ths best roofing tile. They may be made any color and have other advantages.

## Incorporation of New Companies

The Dominion Match Company, Limited, has been incorporated, with a capital of one million dollars, divided into one hundred thousand shares. The head office of the company is situate at the City of Vancouver, Province of British Columbia.

The Acme Lumber Company, Limited, has been incorporated, with a capital of $10,000, divided into ten thousand shares. The head office of the company is situate at Davis Chambers, in the city of Vancouver, B.C. The following are the objects for which the company has been incorporated: To carry on in any part of the world the busness of timber merchants, sawmill proprietors.

J. Hanbury & Company, Limited, has been incorporated, with a capital of $1,250,000. The head office of the company is situate at the city of Vancouver, B.C. The following are the objects for which the company has been incorporated: To carry on business in the province of British Columbia or elsewhere as lumber operators, timber merchants, timber cruisers, sawmill and shingle-mill proprietors, and lumbermen in all or any branches of such businesses.

The Coquitlam Lumber Company, Limited, has been incorporated, with a capital of $10,000. The head office of the company is situate at Coquitlam, B.C. The following are the objects for which the company has been incorporated: To carry on business in the province of British Columbia and throughout the Dominion of Canada as timber merchants, sawmill proprietors, and lumbermen in all or any of its branches.

Arkansas-Vancouver Timber & Lumber Company, Limited, has been incorporated, with a capital of $2,000,000, divided into twenty thousand shares. The head office of the company is situated at the city of Vancouver, B.C.

The Wm. N. O'Neil Company, Limited, has been incorporated, with a capital of $750,000. The head office of the company is situate at the city of Vancouver, B.C. The following are the objects for which the company has been incorporated: To take over the business now carried on by the firm of Wm. N. O'Neil & Company, Vancouver, B.C.; to carry on a general business as importers and dealers in builders' materials of all kinds and descriptions, and to act as general merchants and to carry on a general trading business.

## A New Industry for Windsor

The White Saw Mill Machinery Company, of Eauclair, Wis., are building a factory, 36 x 100 feet, of steel and concrete. This is a branch of the Wisconsin works. Windsor is to be congratulated on securing this large industry. Upwards of 100 men will be employed.

## Big Cut of Yellow Pine

The rapid exploitation of lumber in British Columbia is increasing yearly, and almost made the province the equal of Ontario in point of lumber production during 1910. Statistics of the Dominion lumber cut for 1910, collected by the Forestry Branch of the Department of the Interior, state that 1,620,000,000 feet of lumber, worth nearly $25,000,000 was cut in British Columbia in 1910. As a result of greatly increased cutting in the fir and cedar forests, the total amount cut was more than doubled in one year. In 1909 the British Columbia cut constituted one-fifth of the total; in 1910 the proportion formed by the western province was one-third, and it lacked only 45,000,000 feet of surpassing the cut in Ontario. Seven important softwoods make up over 99 per cent. of the cut in British Columbia—Douglas fir, cedar, western yellow pine, tamarack, spruce, hemlock and jack-pine. Nearly 45 per cent. of the total was made up by Douglas fir. This species was cut in 1910 to the extent of nearly 720,000,000 feet, and had the largest actual increase shown by any species—an increase of nearly 250,000,000 feet. Cedar composed one-fifth of the total, and was the second wood in magnitude of cut. The 315,000,000 feet of this species cut was an increase of 217,000,000 feet over the 1909 production. The cut of yellow pine, amounting to 183,000,000 feet, was nearly six times as much as the amount cut in 1909, and was sufficient to raise it from fourteenth to sixth place in importance among the lumber-producing trees of Canada.

## Square Timber Exported

Year by year the export trade of Canadian square timber becomes less, due to the inadequate supply of clear timber suitable for squaring and to the increased home demand. From a bulletin shortly to be published by the Dominion forestry branch, it will be seen that the exports as given by the department of trade and commerce in 1910, did not amount to eight per cent. of the quantities exported from 1871 to 1880, when the trade was at its height and when an average of nearly five hundred thousand tons, worth over five million dollars was exported annually. During 1910 thirty-eight thousand tons were exported, or three thousand five hundred tons less than in 1909. Ninety-seven per cent. of this went to the United States. An increase in the price per ton of 2.03 partly compensated for the decrease in volume and made the total value nine hundred and eighty-five thousand dollars, or only six thousand dollars less than in 1909. As first quality white pine is the chief species exported in 1-10, forming fifty-seven per cent. of the total, Ontario is the province mostly drained for square timber exportations. White pine commands the highest price of the seven exported species, and the 1910 price was $31.22 per ton, a ton containing approximately 40 cubic feet. Birch was the second species in importance, although the eight thousand tons shipped out was only sixty per cent. of the 1909 amounts. The six thousand tons of elm exported was nearly four times as much as in 1909 and with white pine and birch made up ninety-five per cent. of the exportations in square timber. Small quantities of oak, ash, maple and red pine made up the remainder.

## South Carolina's Giant Evergreen Oaks

Almost as celebrated as the mammoth redwoods of California are the giant evergreen oaks of the lowlands of South Carolina. They not only attain a gigantic size, but they are also long-lived. It is no unusual thing to see a monster tree with a girth of fifty to sixty feet.

The vigor of these trees, says The Technical World Magazine, is all the more remarkable, when one takes into consideration the amount of parasitic growth with which so many of them are laden. Apart from the thick streamers of Spanish moss, which in eight cases out of ten cover the tree like a great canopy, there

is frequently seen on the same tree dense clusters of mistletoe, often hundreds of pounds in weight.

The early settlers of South Carolina, English, the most of them, with an inherited love and veneration for the sturdy oak, planted great avenues of the noble tree to mark the approach to their new homes. Some of these avenues stand almost intact to this day. The oak, too, was made use of not only as the means of adorning their homes, but as a source of revenue. Finding great forests of mighty evergreen oaks when they came, fortunes were made in the shipping of the timber to Europe.

The shipping records of Charleston, S.C., then known as Charles Town, show that as early as 1704 as many as sixty-five to seventy vessels left that port yearly, fully one-half of which were owned by Carolina merchants and planters engaged in exporting ship timber, cabinetmaker's wood, barrel staves and hubs and spokes, the greater part of these being oak.

## Watch Mechanism

Few pieces of machinery show more marvelous features than that of the watch. As a general proposition it may be stated that a watch is the smallest, most delicate instrument of the same number of parts that has ever been devised. About one hundred and seventy different pieces of material enter into its construction, and upward of twenty-four separate iperations are comprised in its manufacture.

Certain of the facts connected with its performance are almost incredible when considered as a whole. A blacksmith strikes several hundred times on an anvil in a day, and as a matter of course is glad when Sunday comes, but the roller jewel of a watch makes every day—and day after day—432,000 impacts against the fork, or 157,680,000 blows during the course of a year, without stop or rest—or some 3,153,600,000 blows during the space of twenty years, the period for which a watch is usually guaranteed to keep good time.

But the wonder of it does not cease here. It has been calculated that the power that moves the watch is equivalent to only four times the force used in a flea's jump. The watch power is, therefore, what might be termed the equivalent of a four-flea power. One horse-power would suffice to operat 270,000,000 watches.

Furthermore, the balance wheel of a watch is moved by this four-flea power 1.43 inches with each vibration, or 3558¼ miles continuously in one yeai.

Not much oil is required to lubricate the little machine on its 3500-mile run. It takes only one-tenth of a drop of oil to oil the entire machinery of a year's service.—Scientific American.

## Opium Smuggled in Barrel Staves

Through some clever work on the part of the customs secret service men 199 cans of opium hidden in the staves of barrels that contained lamp-blacking have been seized and the would-be importer and his assistants arrested, reports the Manila Times.

Some time ago ten barrels of lampblacking, along with several other articles, came on the steamer Tsiasang, consigned to a Chinese importer of the city. Little suspicion was aroused and the barrels passed through the custom house after undergoing the usual examination. From pier 3 the barrels were taken to the warehouse of an importer on Calle Jolo.

Nevertheless the customs secret service men felt that the barrels contained more than they were labeled to hold and accordingly kept close watch over the warehouse. Their efforts were quickly rewarded, for upon entering the warehouse they say they caught Hao Ye Kiam, Lim Tiong Tim and Lem Tiang Hei in the act of opening the barrels and withdrawing opium.

As the staves of the barrels were rather thick just in the centre instead of being hollowed, the smugglers had carved out a small sort of pocket, large enough to contain a narrow can of opium in each stave. When the staves were set together it was impossible to see these openings.

## A Bill Nye Story

Laramie was then the home of bill Nye, writes Carrie Adell Strahorn, in "Fifteen Thousand Miles by Stage," describing early days in the far American west. He edited the Laramie Boomerang, which brought him into prominence as a humorist. Bill Nye was a funny man with his pen, but not with his tongue, and it was seldom he could give quick, bright repartee in his speech. Once in his home town his wit did come in a sudden flash on an occasion when he went into a bar for his favorite beverage. As he put his foot on the rail and leaned over the mahogany a stalwart stranger gave him a shove that aroused the funny man's ire. Turning about and indignantly scorning the bulk of humanity beside him, he said he would give him two minutes in which to apologize. The great six-footer eyed Mr. Nye's diminutive form from his bald head down to his shiny boots and back again, taking nearly the limit of his time in the scrutiny. Then, without a gesture or a smile he simply said, "I apologize," and walked out. The manipulator of cocktails let go his breath with a noisy "whew," as he asked Nye if he knew who that man was. Mr. Nye replied that he did not, and didn't care, as he had apologized. The man behind the bar was so excited he could scarcely articulate, but he bawled out: "Why—why—why, that man is John L. Sullivan: now what would you have done if he had not apologized? I say, what would you have done?" "Well," said Nye, as his eyes widened with the thoughts of his miraculous escape, "I would have extended his time."

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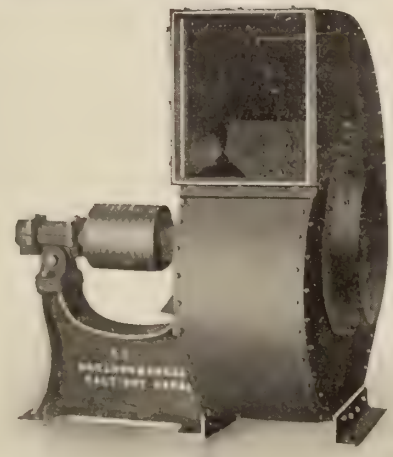

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**OF**

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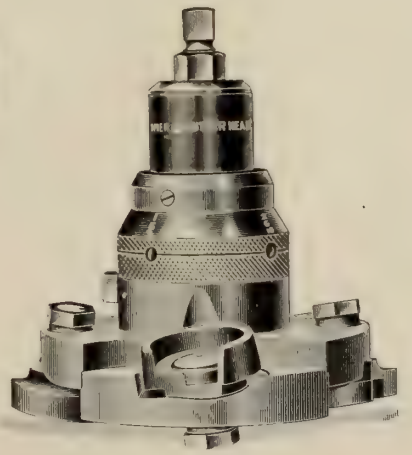

**Fig. 202**

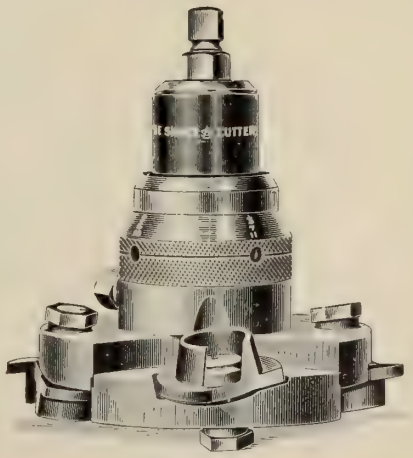

**Fig. 203**

on your matcher or moulder will convince you of their ability to produce neatly formed single tongue and groove flooring in sufficient quantity to make their use interesting. The cross-grain and the knot take better finish by reason of the alternate clearance cut, for making of which these tools embody special features

The cutters work in pairs, dividing the cut into upper and lower series upon the head, operating alternately, thereby reducing the tendency to tear out the fibrous or knotty portions of the board. Their careful, systematic construction reduces the labor of keeping the heads and bits in perfect order, and in many mills have been known to SAVE THEIR COST IN A DAY'S RUN.

**SEE THAT YOU GET THE GENUINE**

Look for the NAME and TRADE MARK **"The Shimer Cutter Head"** stamped on every Head we turn out. A dealer who would sell you an imitation means to deceive you—send them back and demand the genuine article with our guarantee for your protection.

## Samuel J. Shimer & Sons,

**Branch of Milton, Pa.** **GALT, ONTARIO, CAN.**

AMERICAN
FIRST IN QUALITY

IT HANDLES the material with as much dexterity as the hands of a skilled operator.

*An Apprentice can run it*

# American Combination Hand and Power Feed Jointer

For jointing crooked stock or taking out of wind warped or twisted material this tool is very effective. Then the sectional roll handles pieces of varying thickness at the same time. You can save a lot of time and labor on this machine and the element of danger is eliminated.

*Write direct for further information, or nearest Sales Office*

## AMERICAN WOODWORKING MACHINERY CO

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SALES OFFICES
SPOKANE - 314 W. PACIFIC AVE
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SAN FRANCISCO, CAL - 46 FREMONT ST.

CANADIAN WOODWORKER

Toronto, December, 1911


# Whitney Planers

**will turn out the largest quantity of surfacing whether it be the choicest hardwood, common flooring, or box boards.**

¶ Because we lay stress on this fact—that Whitney Planers are built to produce the smoothest of surfacing, it must not be inferred that they are not adapted to plane any kind of lumber brought to them.

¶ Every Whitney Planer, after it is built and set up, is thoroughly tested under conditions approaching as near as possible actual service—and the result must be the same in every instance—a perfect surface before that planer can leave our factory.

¶ For illustrated details of the Whitney Planer construction, write us or our nearest selling representatives.

## Baxter D. Whitney & Son

**WINCHENDON, MASS.**

**AGENTS:** Pacific Coast Sales Dept.,
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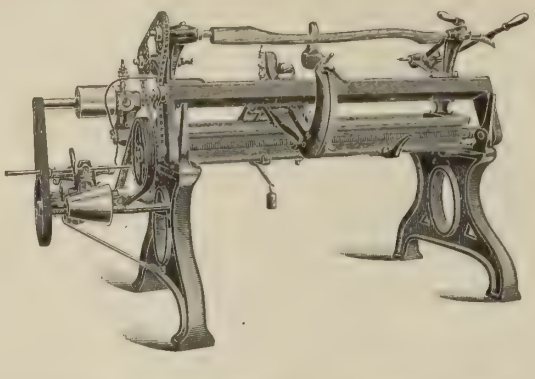
26 Pall Mall
Manchester, England.



This cut shows the No. 1 Lathe for turning Axe, Pick, Adze, Sledge, Hammer and Hatchet Handles, Spokes, Whiffletrees, Gun Stocks, Lasts, and other irregular work.

**Simple Strong Durable Economical**

We also manufacture other Lathes for making Handles, Spokes, and Variety Work; Sanders, Shapers, Boring and Chucking Machines, Rip Saws, etc., etc.

Complete Catalogue and Price List Free.

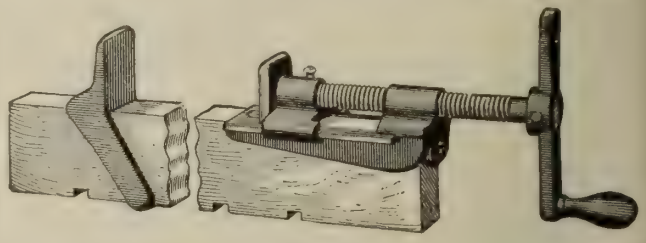
**The Ober Mfg. Co.**

**31 Bell St., CHAGRIN FALLS, Ohio., U. S. A.**

**Clamp Fixtures, Per Set, 50 Cents**

Gentlemen :—We are pleased to state that the 25 dozen Patent Malleable Clamp Fixtures which we bought of you a little over a year ago are giving excellent service. We are well satisfied with them and shall be pleased to remember you whenever we want anything additional in this line.

Yours truly, CURTIS SASH & DOOR CO.,
Sioux City, Iowa.



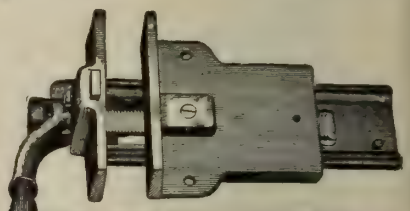
No. 1

STEEL BAR CLAMPS

The bars of our STEEL CLAMPS are especially tempered and guaranteed indestructable. Screws and fitting quickest possible action and made to stand any service or abuse. Don't fail to test sample of this clamp before you buy elsewhere.

Over 26,000 of our Steel Rack Guaranteed Vices

now in use. We solicit the privilege of submitting samples of these specialties on terms that will be attractive to rated firms. Write for list and prices.



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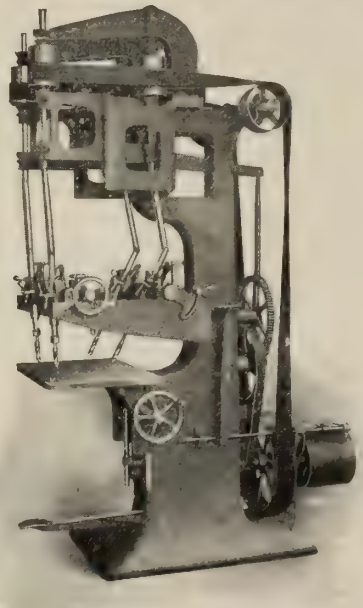
**E. H. Sheldon & Co., 326 N. May St., Chicago, Ills.**

Power Feed 4 Spindle

**UNIVERSAL BORING MACHINE**

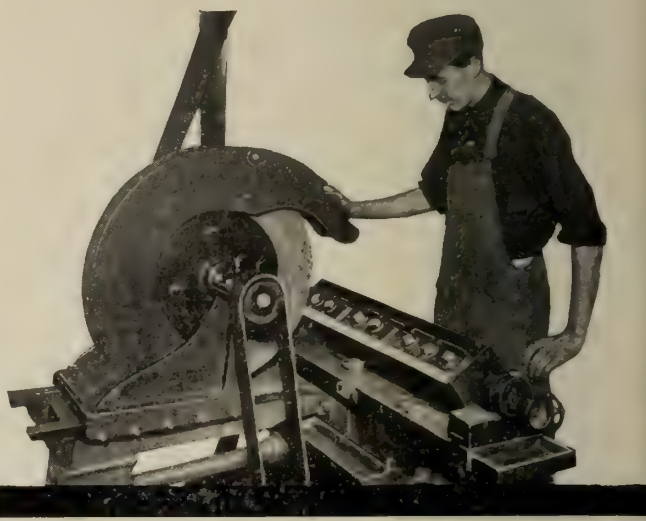
Bores Four Leg-Holes at one Operation in 900 to 1,000 Chair Seats an Hour



"It saves 75% in labor and the holes are uniform. We would not want to make chairs without it."—A pleased customer.

**Let me tell you all about it.**

**J. M. Nash, 842-848 30th St. Milwaukee, Wis.**

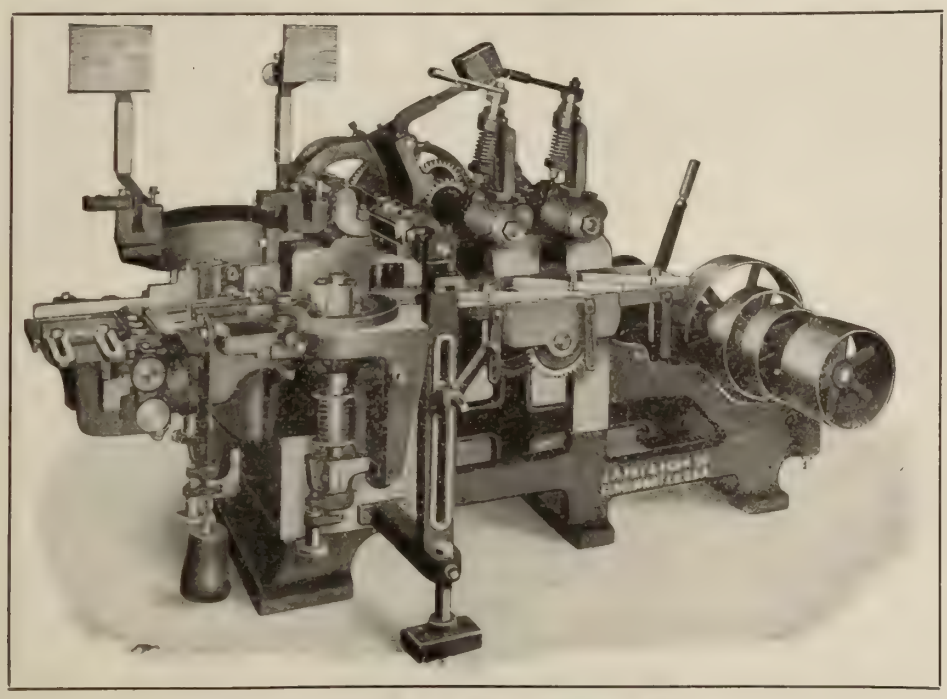


**Carborundum Knife Grinding Wheels have cut their way into favor in many of the most prominent wood working establishments in the country**

They not only do twice the work of any other grinding wheels—but they do it better and cleaner. They stand up well—do not burn the work—do not draw the temper even from the finest steel. Require almost no attention and last much longer than other abrasive wheels.

**THE CARBORUNDUM COMPANY**

**Niagara Falls, New York.**



**No. 209 Four-Side Molder, 7″**
Patented May 20, '02, Oct. 10, '02, Oct. 23, '06.

# A Modern Molder

This new "high efficiency" type has these features :

**1st—One-piece frame**
**2nd—Wide Open Construction**
**3rd—Clamp Bearings**
**4th—Spring Pressures to Feed Rolls**
**5th—Detachable Outside Bearing to Upper Head**
**6th—Self-Contained and Adjustable Countershaft**
**7th—Bed raises and lowers on Screws mounted on Ball Bearings**
**8th—Down Driven Feed Rolls with wide-faced Driving Gears**
**9th—Reversible Plate under upper head, one side plain and the other grooved for over-swinging cutters**
**10th—Feeds arranged for fine or coarse work**

When buying a Fay & Egan molder you get every one of these features, plus that built-in quality gained as a result of eighty-one years' experience in building high-grade wood-working machinery.

In addition you have the most complete line to choose from. From 4″ to 14″ wide we build a machine to suit any and every purpose.

The biggest and most particular mills and shops in the country, especially where accurate manufacturing costs are kept, are using Fay & Egan molders because they have found them to be in a class by themselves when it comes to doing fine work, and lots of it, day after day without expensive shut-downs.

**Our Molder Catalog sent free on request—Write for it.**

**Sales Offices:**
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## J. A. FAY & EGAN CO.,

**Manufacturers of Woodworking Machinery**

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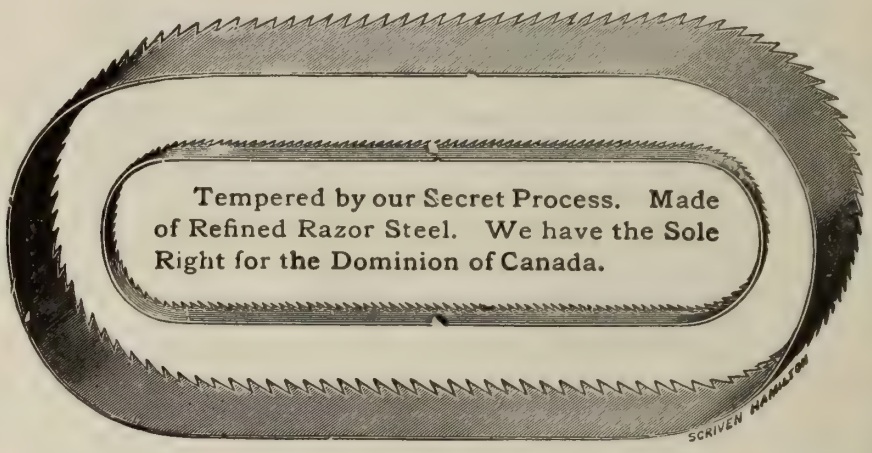
MADE BY

LARGEST SAW MANUFACTURERS UNDER THE BRITISH FLAG

We manufacture Circular Saws Gang Saws Mill Saws Band Saws Cross Cut Saws Buck Saws Saw Setts etc.




We manufacture high-grade **Band Saws** of all Widths and Lengths

These Saws are made of Refined Razor Steel, and Tempered by our Secret Process; for Fine Finish and Temper are not excelled.

**"Maple Leaf" Saws** are the best-tempered saws made

We are the only manufacturers in the world who export Saws in large quantities to the United States

**Shurly-Dietrich Co., Ltd.** **Galt, Ont.**

Western Warehouse and Office, Vancouver, B.C.

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## Wood-Working for Amateur Craftsmen

"Written So You Can Understand It" By IRA S. GRIFFITH, A.B.

125 Illustrations 128 Pages
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**Price 60 Cents Postpaid**

This book was especially designed to cover every essential step from the A B C to the X Y Z of woodworking. The chapters dealing with making special articles bring out every cut joint and process used in this important trade, and the proper use and care of tools, working up of materials, etc., are treated thoroughly and plainly.

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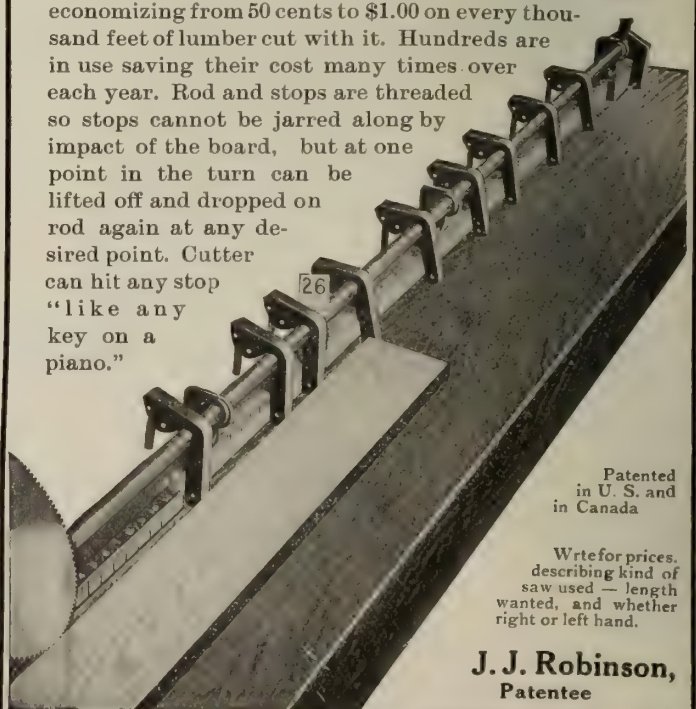
**A valuable book for either self instruction or use in manual training courses.**

BOOK DEPARTMENT

**Canadian Woodworker**

## Robinson Improved Saw Gage

**Made in Canada**—Saving Duty and U. S. Freights for Canadian Purchasers. Sent on 30 days Free Trial. If not entirely satisfactory, send it back at our expense. This Gage will save Time, Material and Mistakes, thus economizing from 50 cents to $1.00 on every thousand feet of lumber cut with it. Hundreds are in use saving their cost many times over each year. Rod and stops are threaded so stops cannot be jarred along by impact of the board, but at one point in the turn can be lifted off and dropped on rod again at any desired point. Cutter can hit any stop "like any key on a piano."




Patented in U. S. and in Canada

Write for prices, describing kind of saw used — length wanted, and whether right or left hand.

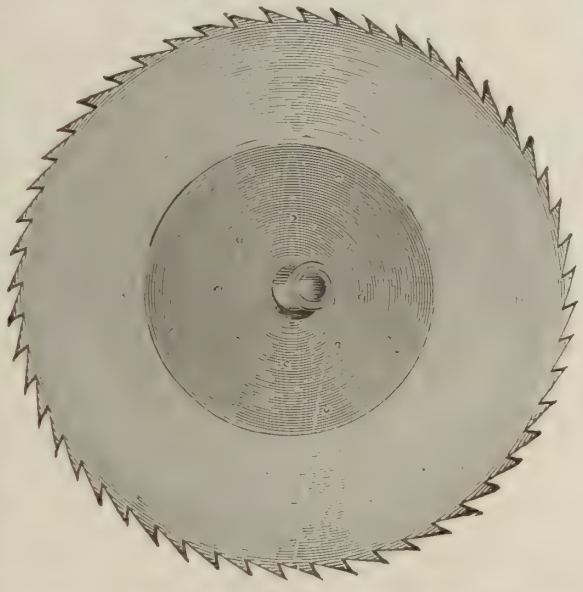
**J. J. Robinson,**
Patentee
Bolburgs, Col. Co., Pa., U.S.A

# R. H. Smith Co., Limited

## St. Catharines, Ontario

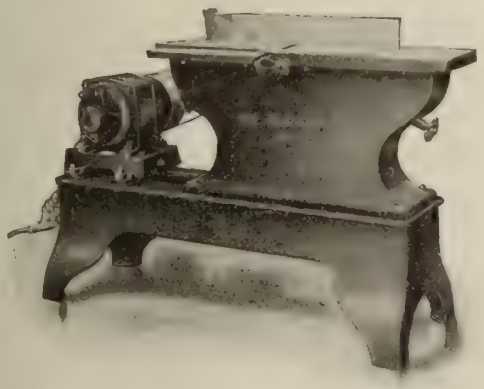
MANUFACTURERS OF THE CELEBRATED "GOLD COIN" SAWS

**We make Inserted Tooth Saws, Shingle Saws, Cross Cut Saws, Hand Saws, etc., etc.**



**We make every kind of Saw required in Saw Mills, Planing Mills, Furniture Factories, Piano Factories, Carriage Factories, etc., etc.**

We have been manufacturing for the Canadian trade since 1855, and have maintained the same high standard of excellence. Let us know your saw requirements.



"The Porter" Jr. 5" Bench Jointer is ideal in any place where work within its capacity is done.

We equip them to your order with Square or Safety Cylinder, with or without Bench, and with or without Motor.

There is a **reason** why we ship so many of "The Porter" machines into Canada. They are **Quality** machines at **reasonable** prices.

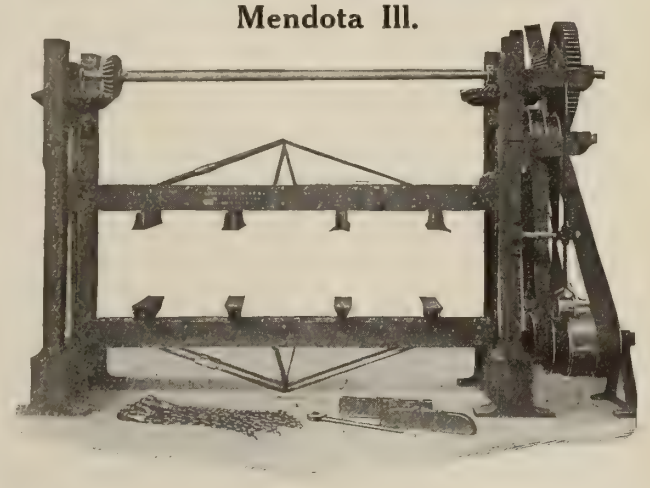
Our catalog J may be of good service to you. Send for it.

## C. O. Porter Machinery Co.,

**Grand Rapids, - Mich.**

## Black Bros. Machinery Co.

**Mendota Ill.**



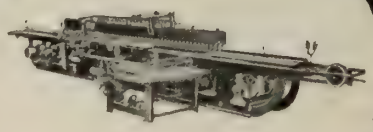
## A Veneer Press with a Reputation

We would like to give you particulars of this machine, because we can show you increased production and a better finished job. :: :: :: : ::

**Better let us send you a folder about our Veneer Presses**

# ONE TO FIVE THOUSAND DOLLARS SAVED!

## THE LETTERS GIVEN BELOW POINT THE WAY.



CUMMER-DOWSWELL LIMITED
HAMILTON, ONTARIO
CANADA

November 23rd, 1911

Messrs.
The Canadian Linderman Machine Co.:
WOODSTOCK, ONTARIO

Gentlemen:-

We promised sometime ago to write you expressing our opinion of the Linderman in actual use in our factory and after having had several months use of it, gladly do so now. It has obtained for us all that we claimed for it. Briefly stated, it is all that you claim in respect to its capacity, very satisfactory in respect to the quality of work it does and an economizer of materials.

Yours truly,
CUMMER-DOWSWELL Limited

James D'avidson

Ottawa, Ont.

Nov 22nd. 1911

Messrs. Canadian Linderman Machine Co,
Woodstock, Ont.

Gentlemen:-

We are pleased to make the following statement regarding the merits of your Canadian Linderman Machine.

We turned out 11,000 Box ends 12" x 10" at a cost of $3.40 This was the work of one day. You can readily see that this Linderman Dovetail Glue Jointing Machine is one of the best money savers we have in our factory to-day.

What particularly impresses us is the strength and invisibility of the joints.

We are glad to be able to make this statement

Yours very truly
JAS. DAVIDSON
Per. [signature]
Mgr.

Meier & Pohlmann Furniture Co.
Fourteenth And Palm Streets

St Louis Nov. 7, 1911

Linderman Machine Co.,
Muskegon, Mich.

Gentlemen:-

The five foot jointer we bought from you several months ago is giving us the best of satisfaction. We are saving 5 men, about 75% of the glue we formerly used for making joints, and turn out about 20% more stock. The joints are first class in every respect

Very truly yours,
MEIER & POHLMAN'S FURNITURE COMPANY
[signature]

JJO/EG

National Casket Co.

MILL & DIMENSION DEPARTMENT

Asheville, North Carolina
Oct. 21, 1911

Canadian Linderman Co.
Woodstock, Ont.

Gentlemen:-

Answering your inquiry of October 23rd. as to the merits of the latest Linderman machine which we have installed here, will say that we have found the machine to be in every way satisfactory and much more economical than any other method which we have used for making glue joints. Other jointing methods, and even the earlier types of the Linderman Machine have failed to produce the perfect work which we get from the 1911 Linderman. The joints produced by this machine are practically invisable and their strength is beyond question.

In reference to economy, the fact that the narrowest strips can be utilized, where their presence is not objectionable, and the fact that the machine handles a large output with a minimum cost for glue and labor, makes it a very economical proposition.

Very Respct.,
National Casket Co.,
[signature]
Mgr.

CPH/EB

# CANADIAN LINDERMAN MACHINE COMPANY
## WOODSTOCK, CANADA

# It Rips to Pay

**This machine does the work of three ordinary benches**

and is indespensible for ripping stock of all description.

It can be worked with **one, two** or **more** saws.

Giving feeds of **40, 60** and **80** feet per min. saves floor space.

Can we send you further particulars?

*Let us quote you.*

**T. White & Sons**
**Engineers Limited**
**Paisley - Scotland.**

Telegrams:—White, Paisley.
Code:—A B C on all Government lists.



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BY DAVID PENN MOUTON, B. S. E. E.

**This book is a school within itself, written in plain, simple, everyday language so you can understand it. A Book that tells HOW, WHEN and WHY.**

CONTENTS The Electrical Circuit Terms Explained by Means of the Water Analogy; Ohm's Law; Series and Divided Circuits; Calculation of the Resistance of Various Circuits and Conductors; Primary Batteries; Dry and Wet Cells; Voltage; Internal Resistance and Polarization; How to Renew; Series and Parallel Connections; Tables of Data of Commercial Types of Cells; Magnetism; Permanent Magnets; Electromagnets; The Magnetic Circuit and Quantities Involved; Magnetic Properties of Various Materials; Magnetic Calculation; Instruments; Construction of Various Types of Ammeters, Voltmeters, Wattmeters, Galvonmeters, etc.; Calibration of Instruments; The Dynamo; Fundamental Principle; The Magnetic Field; Commutation; Armature Reaction; Characteristics of the Series, Shunt and Compound Types of Generators; Motors, Fundamental Principle; Various Types and Their Application to Different Kinds of Work; Motor Speed Motors; Railway Motors, Elevator Motors, etc.; Storage Battery; Fundamental Principle; Commercial Types; Care of; Systems of Power Distribution; Two and Three Wires; Balancers; Motor Generator Sets, etc.; Practical Operation of Electrical Machinery; Connections in Series and Parallel; Motor and Generator Troubles, How to Locate and Remedy Them; Electrical Lighting; Various Types of Incandescent and Arc Lamps; Application of Various Types; Photometry of Lamps; The Nernst Lamp; Moore Tube; Mercury Vapor Lamp; Electrical Wiring; Calculation of Conductors; How to do Exposed Moulding and Conduit Work; How to Install and Connect Heaters, Hotors, Generators, Fixtures, Arc Lamps, etc.; Wiring Tables for Different Classes of Work; Alternating Current Circuit; Comparison of the Direct and Alternating Current Circuit; Quantities Involved; Series and Divided Circuits; Measurements of Power; Alternating Current Generators and Motors; Resuscitation; Numerous Miscellaneous Reference Tables.

Bound in black flexible leather, round corners, red edges, gold stamping side and back. **Price $2.00**

**Book Department Canadian Woodworker**
**TORONTO**



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## Wood Working Machinery

**THE METAL**

**HARRIS HEAVY PRESSURE**

**The Babbitt Metal without a Fault**

**The Unsolicited Testimonial**

To Canada Metal Co, Toronto. Hawkesbury, July 21, 1911

We are very much pleased with your Heavy Pressure Babbitt. It has given us complete satisfaction and we consider it as good as we were paying another firm 60 cents for.

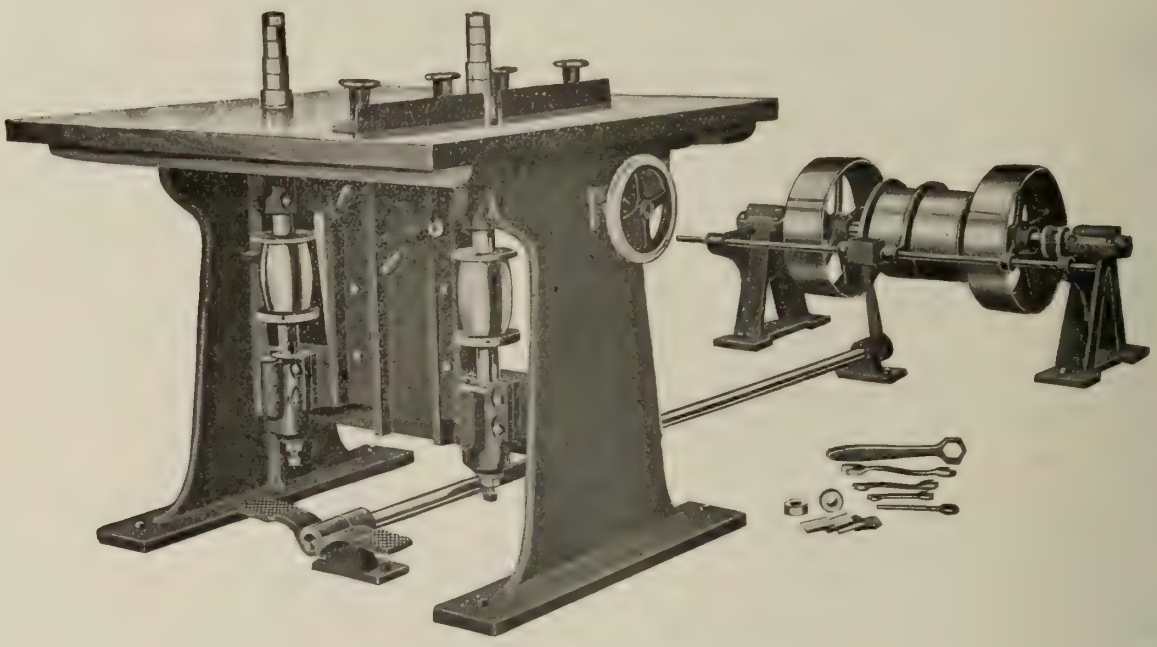
Hawkesbury Lumber Co'y. Limited, per Wm. G. Hall

Write for Prices

**THE CANADA METAL CO., Limited,**
**FRASER AVENUE - TORONTO**

# Canada Machinery Corporation

GALT Limited



**No. 804 Double Spindle Shaper**

Above illustrates our light double spindle shaper, with frame cast in one piece, spindles of special light carbon steel, and extra long bearings. Table supplied either of iron, or glued up strips of ash and maple.

We also manufacture the most complete and up-to-date line in Canada of Matchers, Surfacers, Moulders, Sanders, Tenoners and Morticers, Door and Blind Machinery, Rip and Cross Cut Saws, Band Saws and Band Resaws, Shapers, Jointers, and Boring Machines.

WRITE US FOR BULLETINS AND PRICES.

# Canada Machinery Corporation

GALT, ONTARIO Limited

# Canadian Woodworker

**Canada's Only Woodworking Paper**

Published in the interests of Planing Mills, Saw Mills, Furniture and Piano Factories, Implement and Carriage Works, Boxmakers and Coopers.

The Circulation extends from the Atlantic to the Pacific and covers thoroughly all classes of Woodworkers in this immense territory.

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RICHARD PEARCE, Editor

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United States: E. J. MACINTYRE, 4057 Perry St., Chicago.

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**Vol. 10** **December, 1911** **No. 6**


# THE YEAR-END

## What a Great Year 1911 Has Been

NEVER before have we had such piping times. Never has there been so much activity in the building trades as during the open season that has just passed. Never has there been a winter period when construction was so extensive and unceasing.

Everybody's prosperous; everybody's making money. The man at the head of affairs has plenty to do and the artisans have plenty of work.

Building business in 1911 has broken all records. From the Maritime Provinces, which are awakening and stretching into a new activity, across Quebec and Ontario, where the cities, and especially the smaller cities in Ontario, have shown phenomenal movement in building construction; across the broad and home-hungry, eager prairies, to the Pacific coast, is the tide, better, the flood, of prosperity swelling.

The whole country, right to heart, is prosperous. We are constantly increasing our wealth. We are demanding better homes, better surroundings, better buildings and better conditions. The country must grow, and is growing.

Our Canada has no place for the lagging. Everyone must be energetic. It is the price, the willingly-payed price, of prosperity. We must hustle to business, at business, and for business.

But to revert to our review of the twelve month passing out. Not alone in the building trade and its kindred woodworking enterprises are we enjoying happy times. In every craft that fashions shapes from wood have we animated movement. The personal-wealth of the nation is reflected in the great growth of the piano making industry, and in the picture frame, and in the finer hardwood work, in all we are enjoying bountiful business. In every line, from shipyard to shingle mill, is this great flood of prosperity apparent.

The Canadian Woodworker trusts that everyone is getting his measure of good business. The Woodworker is getting its share, and a goodly share, too, of fortune's blessings. The Woodworker has made many new friends during the year. It has a great number of old friends, and it hopes to make many more in the year to come. And to all its friends, they that are now, and those that are to be, the Canadian Woodworker heartily extends the sincerest wish that all may continue to prosper as they have prospered during the year of nineteen-eleven.

## A Growing Organization

The Ontario sash and door manufacturers met in Toronto recently for the purpose of discussing matters of interest to the trade. And as the report says, the gathering was a representative one. Yet many mill men whom we know personally were absent. We understand how difficult it is for some men to get away from their business to attend meetings. But in a case of this kind it is well worth one's while to make an effort to get together and take part in the discussion of matters connected with their own interests.

The objects of the association are to promote harmony in the trade and keep prices and conditions of manufacture on such a level that good living wages can be paid for labor, and to secure a fair return for the capital invested.

The Canadian Woodworker strongly advises all Ontario sash, door and planing mill men to join this association.

## Permits Issued in Regina Amount to Seventy-five Thousand Dollars for November

The Financial Post in its current issue gives interesting particulars of building permits issued in Canada for the first 10 months of the present year. The record of building in Canada for the ten months ended with October has substantially confirmed earlier expectations of a banner year. The figures for October showed a net gain of 15.7 per cent. over the previous October, and statistics covering 29 cities show a gain of 29.06 per cent. for the year to date, compared with 1910. The aggregate population of these cities, according to the recent Dominion census, is 1,703,636, or 24 per cent. of the total population of Canada, and, therefore, the aggregate permits for 1911 equal $63.44 per head.


This is the time to make arrangements for the renewal of your advertising contracts. 1911 has been a good year for you. Why not let 1912 be even better? The Canadian Woodworker is increasing it's circulation by leaps and bounds. It already covers the whole of Canada, and hundreds of copies go to the United States and foreign countries.

It is the only paper published in Canada devoted exclusively to the interest of the woodworking industry.

It reaches the sawmill man, the builder and planing mill man, the cooper and boxmaker, furniture manufacturer and wagon and carriage maker.

All these men use wood-working machinery. Let us tell them about yours.


Praise is due the man who makes good when conditions are bad.

Pencil marks on a white door are sometimes difficult to eradicate from paint. Try rubbing with india rubber; if that fails rub with a flannel moistened with turpentine.

W. D. Cargill Cargill, Ont.
President

F. W. Brennen, Hamilton, Ont.
Secretary-Treasurer

# The Ontario Sash and Door Association Meet in Toronto

## The Executive will Take up Standardization of Matched Material and Stock Mouldings

The meeting of the Ontario Sash and Door Association, which was held last month, is likely to be productive of good results to the trade. The meeting was attended by some of the best and well-known manufacturers of the province. Among whom were noticed the following gentlemen:—W. D. Cargill, Cargill, Ont.; F. W. Brennen, of M. Brennen & Son Manufacturing Company, Limited, Hamilton; Grant P. Davidson, of James Davidson, Ottawa; R. A. Rastall, of Mickle, Dyment & Co., Brantford; R. Truax, Walkerton; E. R. Eaton, of J. R. Eaton & Sons, Orillia; F. Buchanan, of Lloyd & Buchanan, Wingham; H. Knight, of Knight Bros., Burks Falls; J. H. Hockin, of R. Stuart & Co., Guelph; Jno. A. Gray, of The Harriston Planing Mills; R .A. Laidlaw, of R. Laidlaw Lumber Co., Toronto; O. W. Rhyner, of Mickle, Dyment & Co., Brantford.

The president, Mr. W. D. Cargill, who was in the chair, made a splendid address, speaking in glowing and optimistic terms of the present trade conditions and the bright outlook for the future.

Speaking for his own firm he said that they were shipping more doors this fall than they had last year. This led him to touch on the question of price cutting, which he was glad to be able to say did not exist to any great extent.

This question was fully discussed later, when it was disclosed that when any cutting had been done it was owing to the extra freight rates which the manufacturers in these instances had been compelled to pay. Several of the members present had something to say in regard to freight rates. Mr. Cargill being of the opinion that if the manufacturers would all agree to pay the freight it would put all on an equal basis. He was opposed to in this by Mr. Buchanan, who said that whenever he had been asked to quote on rates f.o.b., the town from which the enquiries came, he had always replied that their rates were f.o.b. Wingham.

Mr. F. W. Brennen spoke warmly on price cutting; he could see no need of the Canadian manufacturer doing so, but earnestly advised that steps be taken to prevent the dumping of American doors into Canada. Mr. Brennen went on to say that if the retail men would stock up in the winter time instead of holding back orders until the busy season was on, there would be no excuse for importing doors from the United States, which were sometimes of a low grade and price. Mr. Buchanan, Mr. Truax, Mr. Grant P. Davidson, and other members, expressed a similar view. It was finally agreed that a committee wait on the Minister of Customs and find out what could be done in the matter. Messrs. Buchanan, Cargill, Truax and Davidson were named by the chair.

A good many of the members spoke on the grading of lumber, which is far from being satisfactory. Messrs. Truax and Knight will wait on the lumbermen and try to arrange a better system and report at the next meeting.

The present price list, with current discounts, will be continued, and its use recommended to the general sash and door trade.

The president called on the Editor of the Canadian Woodworker to speak on the standardization of matched stock and a revision of the moulding catalogue.

The speaker pointed out the great inconvenience the builder is put to in handling material manufactured in mills situated in different parts of the province of Ontario.

In the course of his remarks he called attention to the fact that a builder can buy flooring, sheeting and siding at any mill on the Pacific coast with a certainty of its matching with the product of any mill as far east as Winnipeg, while in Ontario each manufacturer runs his stock without any regard to its matching with that run in some other part of the province. In closing Mr. Pearce said that it was time that we reformed this state of affairs. Eight or nine of the members present took part in the discussion that fol-

lowed, and spoke favorably of the movement. Many suggestions were offered as to which would be the best way to bring about this much needed reform. It was finally moved that the executive take the matter in hand and report on a plan of action.

All that is required now is concerted action on the part of Ontario manufacturers. This the executive will no doubt succeed in obtaining.

The Woodworker has the as urance of manufacturers who do not at present belong to the association that they will be glad to co-operate. They are only waiting for the report from the committee.

It will take some time to prepare this report, as there are so many details to be considered in connection with the matter. But the movement is well under way now and in the meantime the "Canadian Woodworker" will be glad to assist the committee and furnish all the information that may be required by publishing any letters relating to the subject.

## Toronto Millman Expresses Himself

The following letter received from Mr. T. H .Hancock contains some good suggestions.

The Canadian Woodworker,
Mail Building, Toronto.

Dear Sirs:—

In answer to your letter of November, regarding the standardization of matched stock, my opinion would be that all flooring stock should be matched to work off the centre so as to allow a little opening on the bottom to insure being tight on face. All sheeting I would recommend matched centres so as to be reversible. As for thickness, all 1-inch lumber, both hard and soft woods, to be dressed to 13/16-in. full two sides. As for widths, both hard and soft woods, to be finished on the even inch or ½-in. (There is a lot of stock being matche very uneven in regard to widths at present).

Regarding the standardization of stock moulding, I do not think it would be advisable to adopt any regular line, but more to encourage the little bit of individuality which would maintain prices and be satisfactory to the different localities.

These are my rough ideas of these questions, but if there is anything further you wish to know I would be glad to talk the matter over with you.

Thanking you, I am, yours truly,

T. H. HANCOCK.

## The Workman's Attitude Toward the Machine

In a recent number of Die Umschau, under the heading "What the Workman Thinks of the Machine," F. Muller gives an account of impressions gathered by him regarding the place which machinery occupies in the mind and life of the workman. The method which the author has adopted to obtain his material is to approach a large number of workmen, requesting them to express their views to him by letter. He quotes passages from a number of such letters, from which a few excerpts are given below.

An umbrella maker writes: "For the last ewenty-two years I have had my post at a special machine for making umbrella ribs. There are hundreds of members and joints working at a time. The eye finds it quite impossible to follow all the motions. The first impression which the machine made upon me was one of admiration, coupled with a certain dread. I believe men would be better off if there were not so many machines in use. My machine can hardly be said to be dangerous, unless a man commits some act of extreme negligence. In such case it is true that I have known one of my fellow workers to have his hand crushed into a shapeless mass. I shall never forget the sight. Such accidents harden a man and seem to turn him into a machine himself."

Another writes: "If an accident has occurred in the works, it often affects a workman in such a way that he becomes extremely nervous and excitable. At every chance outcry, made perhaps in jest by some one of his fellows, he imagines that some one has been caught in the machine. The accident will torture such a man in his sleep, from which he will wake up with a start in the grip of a horrible nightmare."

A glass maker in Dusseldorf, who has been at his work for thirty-two years, makes the following thoughtful observation: "I am of the opinion that a man attending a machine cannot follow up an idealistic train of thought, but becomes deadened in his sensibilities. On the contrary, in the pursuit of some congenial manual labor, such as glass making was until recently, he has an opportunity to do this. There is a peculair charm in watching a gang of men working at the tank furnace and singing at their work. It seems a pity that the machine should put an end to all this. In the machine room there is always a certain depression. My opinion is, living for a prolonged period with the machine means a slow dying of a man's higher instincts."

Another workman remarks: "It is found that machine attendants are much more irritable and much more easily given to anger than manual laborers."

This complaint of the strain upon the nerves and the ill effect upon the man's temperament occurs in almost all the letters published by the author; in many, too, is found the statement that the workman's sleep is disturbed by evil dreams about accidents. One man says: "I believe that we should be much happier without the machines, and that there would be three-quarters less cripples in our population than under present conditions." This statement may, perhaps, be thought exaggerated, and is here quoted for what it is worth. Nevertheless, it evidently represents a common impression among workmen, for close upon it we find an observation by another workman, who says that "of four hundred and fifty machinists on woodworking machines in Munich, there are not ten men who still possess their fingers."

While it appears probable that the workmen's estimates may in some cases be exaggerated, through their natural horror at some of the terrible accidents witnessed by them, the mere fact that this impression exists is sufficient to command our very thoughtful and sympathetic attention.

## Sword in Heart of a Tree

Embedded in the heart of a plank of wood taken from a railway station platform at Oakley, Fifeshire, there has been found a sword measuring over two feet long. The plank had been in use for at least fifteen years. The weapon, which was of an old-fashioned type, a short cross-piece forming the handle, was in good preservation, and it is believed had been picked up by the tree at an early period of its existence and encircled with the growth.

The broken gate that hangs upon one hinge swings back most readily to let Poverty enter.

# Increasing Demand for Hardwood Doors

Without much noise, blowing of trumpets, or brass band parading of any kind, the hardwood door is making more progress to-day than any other one article manufactured from wood. It is increasing in volume steadily and continuously at such a rate that it is doubtful if anyone can keep up with it, even to the point of making a correct record of its progress.

It is not merely the hardwood door turned out by the conspicuous and well-known door manufacturers who specialize in this work, but all over the country, planing mills are cntinually turning out increased quantities of hardwood doors. The output of each mill perhaps is insignificant as compared to the output of the door factory proper, but the output from all planing mills all over the country makes an enormous volume.

The hardwood door to-day is usually a veneered door. Now and then may be found a solid door, but these are exceptions and are made to order, to satisfy a sentimental rather than a structural requirement. There are doors with thin hardwood veneer, some with thick hardwood veneer, doors with plain hardwood veneer and doors with extremely fancy veneer very carefully matched and artistically finished.

The standard door is veneered with hardwood veneer one-eighth of an inch thick. In the fancy door, taking mahogany and other figured woods, thin veneer is used, because it is not practical to get it in the standard thickness of the door stock. Also, there is a disposition now in building doors for outside, to use a heavy veneer. Some of it is made as thick as one-fourth of an inch on the theory that it will resist the moisture better and there will not be any likelihood of veneer peeling off, a thing which sometimes happens when thin veneer is used and the door is exposed to the weather on the outside.

In the veneer door manufacturing world proper, birch is the first wood that became conspicuous in the making of the hardwood door. Then came oak, and now we have gum, and the rivalry among these three popular native woods promises to be quite lively in the future.

Already the exclusive makers of birch doors have found themselves compelled to include a line of oak doors and a fair quantity of gum, and those who began making oak doors exclusively at first have found themselves compelled to add a line of birch doors, and following right on the heels of this comes the gum door clamoring for recognition in the front ranks, too. This is among the door factories proper. In the planing mills there is the same rivalry as to choice, but the planing mill men themselves do not take much hand in it. They simply make the doors to order and supply whichever of the native woods is wanted, or when required make the extra fancy doors with mahogany, Circassian walnut, or whatever is specified.

The explanation of the remarkable progress made lately is to be found in the fact that the builders of modest homes have taken to hardwood doors. They cost only a little more than the high-grade solid pine doors. When a prospective home builder goes into some newly finished home and sees hardwood doors, the pine doors are no longer attractive and he wants hardwood doors immediately.

The only people objecting to hardwood doors are the carpenters who find it a little more tedious to put up a hardwood door. So, they are inclined to charge a little more for them, but when the house builder gets them he feels like he has had his money's worth even though the doors cost a little more and the carpenter sticks him a little extra for the hanging.

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## Wood vs. Metal Automobile Doors

In a recent interview with a manufacturer of wood automobile bodies made on behald of Hardwood Record, the manufacturer gave his reasons for preference for wood bodies in the following terms:

"The wood body is lighter in weight. Weight increases tire wear and cost. A steel body is not so resilient as the wood body and is bound to crystalize and eventually cracks. There is no way yet devised of obtaining a steel body where the finish will become permanent or even reasonably secure for even a stort time, which is an important consideration to the consumer. While the manufacturer can paint sheet steel with a reasonable amount of success, it must be recalled that the automobile in the hands of the user is bound to get scratched and marred more or less, and every time the paint is scratched or chipped down to the steel, it is sure to rust and disintegrate the metal. Again, if the steel material used in automobile bodies is not coated with a copped plating, an electric galvanizing or some other anti-rust coating, the moment it is exposed to the atmosphere, corrosion sets in. When corrosion once starts it cannot be stopped, as it will eat away under the paint and through the enamel and steel. The final issue comes with the owner of the automobile when it comes to repainting the body of the machine. No amount of sanding, hammering or sand blasting will eliminate the corrosion of steel. In surface appearance it may be rubbed out, but it is there to stay, and when painted over it continues to corrode, and the paint is sure to flake off. Even if the steel is painted with an anti-rust coating, as mentioned above, there is little possibility of the paint staying on."

Repairs to a badly damaged steel automobile body are out of the question, as it cannot be sucessfully accomplished. A cast aluminum body has many of the defects of the "stovepipe-steel" automobile body. It is almost impossible to hold a finish on it, and when repairs become necessary the machine has to be sent back to the factory to effect them and surely will prove very expensive.

From the automobile buyers' viewpoint there is nothing to be said in favor of metal automobile bodies of any sort, save that they can be formed into more ornamental lines, and make more fancy appearing bodies than is ordinarily possible in wood construction. On the other hand, there are scores of good reasons why a substantial wooden body, made of poplar on an ash frame-work, is superior to any type of metal one yet devised. It is more comfortable in both summer and winter to the occupant; it will outwear the running gear and engine of the automobile; it will hold its finish indefinitely, and is no higher in cost.

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A thoroughbred advertiser is one who can absorb wisdom from common everyday occurrences and then give it off in glowing thoughts in his published propositions.

## A New Use for Sawdust

Planing mill men who are using gas engines or electric power to run their machinery sometimes have difficulty in disposing of sawdust. They will be interested to know that when sawdust or wood pulp is used as part of the aggregate in mixing concrete the resulting concrete is of light weight and low tensile strength, but has some special properties that commend it for certain indoor uses, states a writer in The Cement World. On account of its elasticity, combined with its practically non-absorbent character, it is said to be especially adapted as a floor veneering for markets, butcher shops, saloons, etc.

It may be laid without joints in a continuous layer one and a half inches deep, upon paper spread over the floor that is being treated. In these cases the customary proportions for mixing are one part cement, two sand and two and a half sawdust.

A novel application of sawdust concrete has recently been made in the new public library building in Springfield, Mass. It was employed there as a base on which to lay the cork carpet covering the floors. The object was to obtain a layer into which nails could be driven and which at the same time would hold the nails.

The company that laid it states that it accomplished both purposes. After several experiments with different mixtures it was found that a 1.2.¾ mix—three-fourths of a part of sawdust—gave the desired result; and 5,000 square feet of this mixture was laid. The thickness of the layer was one inch, and after four months of service indications are that the material is a success.

## Getting Shop Knowledge

By A. Mills

When one's reputation precedes him, he is not always able to come up to it. For that reason it is sometimes more convenient to "talk shop" to a stranger than to an acquaintance.

If you ask for advice in the shape of information, you are more apt to get it than in the form of an argument. It seems to be a universal weakness to want to give advice, and human nature is pretty much the same the world over.

A deference to the hobbies of others will bring results that all other methods will fail in procuring. The meanest man in the shop was the one who first showed me how to file a cross-cut saw correctly. He would not have snown me anything about it if I had not flattered his vanity by asking his advice on account of his being such a superior filer.

When he saw that I appreciated his skill to the extent of making it the standard by which to gage my own work, he probably felt it was a compliment he could return by granting the small favor requested. You may not be able to catch a bird by putting salt on his tail, but there are certain of the animal kingdom that like sugar, the human biped being one of them. The sweetness of flattery is very alluring to this particular kind.

## Hints on How to Restore the Polish on Furniture

If furniture looks smearey after polishing you may be pretty certain that too much polish was used. Very little indeed is really needed, only just enough to strong as when new. He does this promptly. Write for particulars and let him tell you all about his method.

A bluish color on pianos or any highly-polished furniture is caused by the action of damp air on the polish. Rub the surface thoroughly with a pitce of chamois leather moistened with a drop or two of sweet oil, and finish by going all over it with the bare hand. No polishing material is equal to the hand for fine surfaces.

Always wipe furniture with a cloth wrung out, of lukewarm water to which a little vinegar has been added. The vinegar and water will remove the dirt and the wood will take a better polish.

One of the best home-made furniture polishes, which is remarkable for the bright and glossy surface which it gives to wood, is made of resin and powdered shellac, mixed with alcohol and linseed oil. The two dry ingredients—one ounce of each—should be mixed together, a pint of alcohol being then stirred in, while a pint of linseed oil is added last of all. A thorough shaking is necessary each time the polish is used.

## Repairing Conceete Floors in Woodworking Plants

Repairing concrete floors which have been chipped or cracked by hard usage is done in the following manner: The damaged portion is chipped out with a chisel and mallet to a sufficient depth to reach the bottom of the deepest break. The rough surface is then treated with acid so as to bring out the solid aggregate, or a stiff brush is used to remove all the loose dust. The surface is washed out with a hose, and when all the dust and traces of acid have been removed, the recess is grouted with cement. Before the latter has set the granolithic finish is applied and leveled up with the rest of the floor. This method of making repairs is stated to have proved entirely satisfactory in many cases.

The boss with a rough exterior may be the best of men at heart, but that doesn't keep us from wishing he would improve his outward appearance.

## Fewer Industrial Accidents During November, 1911

Ninety-five fatal and one hundred and ninety-one serious injuries to workpeople were reported to the Department of Labor during November. The record is considerably more favorable that that of the preceding month or that of the same month last year. In October there were 344 accidents, fatal and non-fatal, and in November, 1910, there were 407. The chief accident during the month was the foundering of the schooner Antigua off St. Martin's River in the Gulf of St. Lawrence, when the captain and eleven sailors were drowned. There were eleven killed in the railway service, eleven in the agricultural pursuits and twevle among unskilled laborers. The largest number of non-fatal accidents occurred in the metal trades, namely, forty-five, but the twenty-three non-fatal accidents reported in the railway service were of a more serious character.

## Send it to Dunne's—He Knows How

The next time any part of a machine in your factory breaks down, don't try to fix it yourself or lose a week or perhaps two weeks, waiting for a new part; but send it to W. H. Dunne, 1492 Queen street west, Toronto. He can braze the break and make it as strong as when new. He does this promptly.

**Write for particulars and let him tell you all about his method.**

# An Attractive Cottage for a Small Family

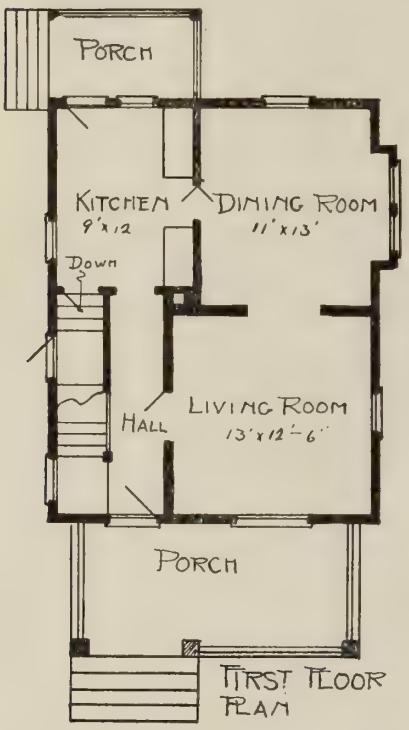
The plans shown herewith of a five-room cottage is intended for a small family. The front elevation is very pleasing. The front porch extends the full width of the house and is nine feet deep. The hall goes through to the kitchen, which is very roomy, and opens onto the rear porch, which is six by ten ft.

The dining room is 11 x 13 ft., with an oriel bay window. The second floor plan shows one front bedroom with two clothes closets, and one rear bedroom, 13 x 13 feet.

The bathroom is on this floor and conveniently located. The special feature about this floor is that ample clothes closet room has been provided. This is a detail too often overlooked in small houses.

For a family of two of three nothing could be more desirable and cozy than the design shown here.

This house, with cypress trimming, hot air furnace, and modern plumbing, is estimated to cost $1,600.

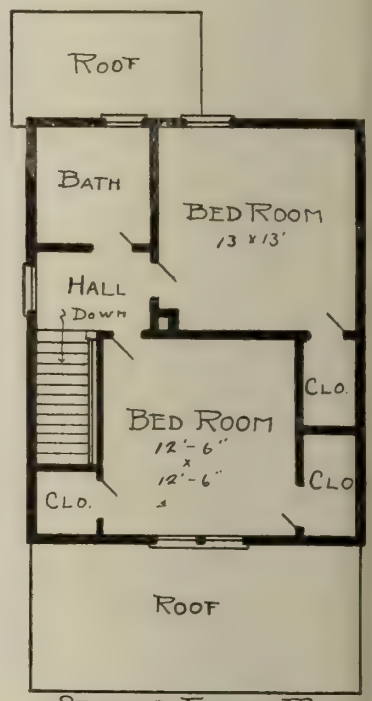


FIRST FLOOR PLAN

FRONT ELEVATION

**At the request of our subscribers we have been showing from time to time, plans of houses that can build at small cost.**

**Just now we are making arrangements whereby we shall be able to illustrate same of the latest designs of Bungalows.**



SECOND FLOOR PLAN

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Hamilton, Ont., continues to make material advance on the building done in past years, the total figures for the work begun in November again showing a marked increase on the figures of last year. According to the regular monthly returns of building permits taken out building to the value of $278,000 was started, as against $238,925 for last year.

## Building Permits—North Vancouver

Considering the season of the year the building permits issued for the month of November are very satisfactory and amount to a total value of $51,260.

## These New Buildings to Cost About $232,000

Permits for buildings valued at $232,200 were issued in Toronto from November 25th to November 30th. Of these 50 were houses.

## A New One for the Carpenter

"And one other thing I want you to remember when you build the house is to put on the finest elastic steps on it that money can build."

"An elastic step, madam "

"Yes, I was readin' how Miss Blubord had a fine elastic step, an' I want one just like it or better."

## Canadian Asbestos

About 82 per cent. of the world's supply of asbestos comes from Canada, according to an account of this industry published in the Chamber of Commerce Journal. The Canadian output has increased from 380 tons in 1880 to 63,300 tons in 1909. The quarries and factories are capitalized to the amount of $24,290,000. In the Black Lake quarries, Province of Quebec, there are 45,000,000 tons of asbestos in sight. The asbestos slate or shingle industry, a development of the last five years, has grown to such an extent that it is predicted that within a short time 75 per cent. of all the asbestos produced in Canada will be used in making this new roofing material.

Waterproofing blue prints is accomplished by the following process, according to the Mining and Scientific Press. Immerse in melted paraffine until saturated a number of pieces of an absorbent cloth 1 ft. or more square. When withdrawn and cooled they are ready for use at any time. To apply to a blue print, spread one of the saturated cloths on a smooth surface, place the dry print on it with a second waxed cloth on top, and iron with a moderately hot flatiron. The paper immediately absorbs paraffine until saturated and becomes translucent and completely waterproof.

# Opportunities in Export Trade for Canadian Manufacturers

The following enquiries have been received from England and other countries relating to Canadian trade. The names of the firms and their addresses can be secured by interested parties by writing to the Enquiries Department, Canadian Woodworker.

Any of our readers who are answering the enquiries should not fail to forward references—particularly if bankers references.

28. **Carriages.**—A firm of importers in Buenos Ayres desires to be placed in touch with manufacturers of two-wheel carriages, with and without hoods, and also buckboards, with and without hoods. Prices must be f.o.b. steamer, and ocean freight rates to Buenos Ayres, shipping weights, &c., must be stated.

29. **Leather and balata belting.**—A firm of importers in Buenos Ayres desires to be placed in touch with manufacturers of belting. Prices must be f.o.b. steamer, and ocean freight rates to Buenos Ayres, shipping weights, &c., must be given.

30. **Splitwood pulleys.**—A firm of importers in Buenos Ayres desires to be placed in touch with manufacturers of splitwood pulleys. Prices must be f.o.b. steamer, and ocean rates to Buenos Ayres, shipping weights, &c., must be given.

31. **Forges.**—A firm of importers in Buenos Ayres desires to be placed in touch with manufacturers of forges. Prices must be f.o.b. steamer, and ocean freight rates to Buenos Ayres, with shipping weights, &c., must be given.

32. **Wood?working machinery.**—A firm of importers in Buenos Ayres desires to be placed in touch with manufacturers of wood-working machinery. Prices must be f.o.b. steamer and ocean freight rates to Buenos Ayres, with shipping weights, &c., must be given.

33. **Tables.**—A firm of agents and importers in Buenos Ayres desires to be placed in touch with manufacturers of tables. Prices must be f.o.b. steamer, and ocean freight rates to Buenos Ayres, with shipping weights, &c., must be given.

34. **Agricultural machinery.**—A firm of importers in Buenos Ayres desires to be placed in touch with manufacturers of agricultural machinery. Prices must be f.o.b. steamer, and ocean freight rates to Buenos Ayres, with shipping weights, &c., must be given.

35. **Agricultural implements.**—A firm of importers in Buenos Ayres desires to be placed in touch with manufacturers of agricultural implements. Prices must be f.o.b. steamer, and ocean freight rates to Buenos Ayres, shipping weights, &c., must be given.

36. **Windmills, pumps and farmers' elevators.**—A firm of importers in Buenos Ayres desires to be placed in touch with manufacturers of windmills, pumps and farmers' elevators. Prices must be f.o.b. steamer, and ocean freight rates to Buenos Ayres, shipping weights, &c., must be given.

37. **Handles (helves).**—A Redditch firm is open to purchase 50,000 helves for intrenching tools. Best quality only as they are for government contracts.

38. **Handles.**—A Birmingham firm is open to receive quotations on split ash hammer handles.

39. **Picture moulding.**—An English firm desires to get into communication with Canadian manufacturers of good picture moulding, plain and pressed. He desires lists and particulars of smallest consignment, terms and delivery into England.

40. **Wood dowels.**—A Manchester firm wishes to purchase in large quantities from manufacturers only, maple or birch dowel rods, prefer them in 24-inch, 30-inch, 36-inch, 48-inch. Would like quotations also for whatever length or thickness made.

41. **Hickory dowels.**—Manchester firm will handle limited number of hickory dowels.

42. **Skewers.**—A Manchester firm will buy maple skewers in various sizes in quantity, also hickory, if any.

43. **Timber.**—A South African firm of general merchants wishes to be placed in touch with Canadian manufacturers and exporters of timber. Catalogues, prices, discounts, &c., are requested.

44. **Office furniture.**—A firm of agents and importers in Buenos Ayres desires to be placed in touch with a manufacturer of office furniture, particularly roll-top desks and sectional book cases. Prices must be f.o.b. steamer, and ocean freight rates, shipping weights, &c., must be stated.

45. **Pine goods.**—A Manchester firm wishes to receive prices of pine goods, first quality 3-inch x 7-11 inch and 3-inch x 11-inch and up. Second quality, 3-inch x 7-11-inch and 3-inch x 11-inch and up. Third quality, 3-inch x 7-11-inch and 3-inch x 11-inch and up. C.i.f. Manchester from Canadian exporters.

46. **Pine sidings.**—A Manchester firm asks for prices of pine sidings in the following sizes: First quality, 1¼-inch, 1½-inch and 2-inch x 7-inch and up with about 9-inch average width, from Canadian shippers of same.

47. **Maple flooring.**—A Manchester firm wishes to be placed in communication with Canadian shippers of maple flooring.

48. **Flooring blocks.**—A Manchester firm asks for quotations of flooring blocks from Canadian shippers of same.

49. **Prime maple strips.**—A Manchester firm asks for prices of prime maple strips 1¼-inch and 1½-inch thick by 3-inch wide (full sawn 3⅛-inch) by 18-inch and up, with 9-inch multiples, from Canadian shippers of same.

50. **Maple squares.**—A Manchester firm requests prices of maple squares 1¼-inch x 1¼-inch, 1½-inch x 1½-inch, 1¾-inch x 1¾-inch, 2-inch x 2-inch, 2¼-inch x 2¼-inch, 2½-inch x 2¾-inch, and 3-inch x 3-inch, in short falling lengths. Also 1⅜-inch x 1⅜-inch, 1 7-16-inch x 1 7-16-inch, 1⅝-inch x 1⅝-inch, 1⅞-inch x 1⅞-inch and 2½-inch x 2½-inch falling lengths, from Canadian shippers of same.

51. **Maple planks.**—A Manchester firm inquires for prices of prime quality maple plangs 3-inch x 4-inch thick and fairly good widths, from Canadian shippers of same.

52. **Octagon blocks.**—A Manchester firm asks for prices of octagon blocks in prime maple, mostly 26-inch x 6½-inch, percentage of 22-inch x 5¾-inch, also 26-inch x 5¾-inch and 22-inch x 6½-inch. If prices are right they can order large quantities. Quotations must be c.i.f. Manchester or Liverpool, and the percentage of shipments must be about 80 per cent. of the 26-inch x 6½-inch size.

53. **Turned wooden pill boxes.**—A Midlands firm who are buyers of turned wooden pill boxes would

be pleased to receive quotations from Canadian manufacturers of such goods.

54. **Unplaned maple strips.**—A London firm report a large opening for unplaned maple strips, 1½-in. x 3-in. x 18-in. and upwards in multiples of 9-in. They wuld like to receive quotations from Canadian manufacturers.

55. **Office furniture.**—A firm of commission merchants in Buenos Ayres desires to be placed in touch with manufacturers of office furniture. Prices must be either c.i.f. Buenos Ayres or f.o.b. steamer, and shipping weights, freight rates, &c., must be stated.

56. **House furniture.**—A firm of commission merchants in Buenos Ayres desires to be placed in touch with manufacturers of household furniture. Prices must be either c.i.f. Buenos Ayres or f.o.b. steamer, and shipping weights, freight rates, &c., must be stated.

57. **Constructional timber.**—A firm of contractors in Montevideo desires to be placed in touch with exporters of timber for building purposes, including doors and windows with their frames, flooring and ceiling, rafters, beams, &c., of spruce. Prices should be c.i.f. Montevideo or f.o.b. steamer, and freight rates, with all possible particulars, should be stated.

58. **Canadian canoes.**—A large firm of importers in Buenos Ayres desires to be placed in touch with manufacturers of Canadian canoes, whose price, f.o.b. steamer, will run from $20 to $30. Shipping weights, freight rates to Buenos Ayres, &c., must be stated.

## How Electricity is Measured

Few of us, outside engineering circles, know how that mysterious servant, electricity, is measured. We only know that the regular monthly bill calls for "1567—1543=24 kw. hr., for which please remit $2.40." Many of us have gone down cellar, or up in the attic, with a lighted candle, to stare with mystified wonder and profound awe at the little mechanical meter, with its incomprehensible dials and unreadable figures, only to wonder what it was all about.

The fact is that electricity, or, strictly speaking, electrical energy, is measured as kilowatt hours. A kilowatt hour is practically the same as 11/3 h.p. hrs., since 746 watts equal 1-h.p. The watt is a rate of work just as a horse power is a rate of work. One tells how hard the dynamo has to work, while the other tells how hard a horse or engine has to work to produce the required energy.

The measurement of electric power may be simply explained thus: The current enters the house and a certain fraction passes through a small motor contained in what is called a "meter." The moving part of the motor, or armature, is connected to an ordinary counter, such as used on bicycles, gas meters and automobiles. This system of toothed wheels is arranged to count the number of watt hours of electricity. A thousand watt hours is called a killowatt hour. The prefic "kilo" always means 1,000. A kilowatt hour costs about 10c. If the result is desired in horse-power hours, it is only necessary to remember that a kilowatt hour is the same as 11/3-h.p. hours.

The wattmeter is peculiar in that it measures power consumed. An instrument which measures the quantity of electricity or "juice" is known as an ammeter, because quantity of electricity is always measured in amperes. An instrument which measures the pressure which drives the electricity is called a voltmeter, since electric pressure is measured in volts just as water pressure is measured in pounds. The wattmeter, however, takes account of both pressure and quantity; that is, it multiplies the volts by the amperes and gives the result in watts. Volts multiplied by amperes give watts, just as pounds-times-feet give horse power, provided we assume that the work was done in a certain time—that is, so much work done in a second, or minute, or hour. The dynamo or "generator" furnishes a certain quantity of energy in kilowatts, but this amount of energy must be used for one before one kilowatt hour can be charged. Two killowatts for half an hour would amount to the same thing. Thus it is necessary not only to state the rate of work in kilowatts, but also to state the time in hours, hence the bill states that the cost has been so much for such and such kilowatt hours—that is, so many kilowatts furnished light or power for so many hours. For example, 10,000 watts energy supplied for five hours would emount to 50,000 watt hours, or fifty kilowatt hours.

The ordinary 16-c.p. lamp consumes energy at the rate of about 55 watts, since the pressure exerted by the generator is about 110 volts, and each lamp allows one-half ampere to flow through it. This is 3½ watts to a candle power. Mazda lamps use about 1½ watts to a candle power; 110 multiplied by one-half gives 55, the number of watts, or, as the engineer often says, "joules per second." This joule is, strictly, a certain amount of energy or work exactly like the ordinary foot pound, and is related to the watt in the same way the foot pound is related to the horse power, differing only in stating the time in whirh a certain work is done. It makes a big difference whether work is done in an hour or a week, and, of course, we wish to pay for work actually performed. This the wattmeter really keeps track of, and, whether we use one light or a hundred, this little instrument will always be on hand, night and day, to take record of the amount used. Perhaps the unthinking person who carelessly leaves the electric light on when not needed would be more careful if he remembers that the generator has to actually exert 1/14-h.p. to keep that single light going, even though the cost is but half a cent an hour.

## Grinding the Teeth of Saws

By M. Wright

Sometimes I get a wheel that glazes the point of the saw teeth. In discussing that feature with an interested party, he advanced the theory that a wheel that glazes is running too slow, and one that burns the saw teeth is running too fast. As the particular wheel that was doing this burning was running less than half the required speed for its size, and still blued the teeth as well as glazed them, I began to think the theory had got twisted somewhere. Maybe it was in the application of it, but it was certain that it did not fit the case in hand either way. For my part, I think it was the motion that had much to do with the trouble. The wheel came down too fast and the pause in passing over the tooth was all at the base of the tooth, and the motion of the wheel was arrested too long at the wrong place. The motion of a wheel over the face and back of a tooth should be continuous, and the poise going over the center of the eccentric should be up when the wheel is clear of the saw blade or plate. This is a feature worth looking into.

# Noticed on the Editor's Travels

### Preventable Waste in a Lumber Yard

One day I saw in a certain lumber yard six cars of B. C. shingles left in the open. In the same yard I noticed a pile of laths that had been placed where the drippings from the roof of the engine room fell directly on them. I noticed also that the lumber piles were uncovered.

How any man can be so careless is, to say the least, astonishing. Think of the loss in value to stock exposed in the manner describel. Also think of the trouble the shipper is put to when filling a bill. Fancy him digging the shingles out of the snow and prying boards and planks apart with a crow bar. And the machine hand scraping ice and snow off the stock before he is able to pass it through the machine.

A certain amount of lumber must be kept in the open but it pays to cover it up. Some men are so strict about this that they have the man who is in charge of the yard go around each night and see that each pile is properly covered.

Keeping lath and shingles under cover seems easy to me. All that is required is rough sheds with a weather-proof roof.

It is said that all men are careless in some particular thing connected with their business. This seems to be true regarding the man who runs the mill and owns the lumber yard mentioned. Everything in the mill is as it should be. The machinery is good and well looked after. But the preventable waste in the yard is deplorable. I wonder what it amounts to in a year?

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### If the Bushing in a New Pulley Shrinks, Try Wrapping Plain Paper on the Shaft

There is no trouble about putting a split pulley with a wood bushing on a shaft so it will hold for any service for which the shaft is heavy enough; but wood has a defect against which all, especially wood-workers, should always be on guard. It will shrink and swell. A wood bushing is, of course, supposed to be perfectly dry, and doubtless most of them are so when they leave the factory, but they often have many chances to absorb a little moisture before they are put up, then shrink again.

In putting on or tightening up a wood bushing, the first essential is to see that it fits the shaft, for therein lies its holding power. If it is too small, of course, it can be worked out, though the job is well worthy of the best workman on the premises. In new work, however, it generally fits; and, when readjustment is called for, the hole is generally too large. Some people plane off the edges of the bushing and screw up the bolts some more, sometimes putting something between the bushing and the hub of the pulley, while others wrap the shaft with a piece of leather, and many resort to a piece of sandpaper.

The writer has attained the best results by using plain paper tightly wrapped on the shaft, being careful to use just enough so that, when compressed, it will make the bushing fit snugly all around, just as when it was new. Too much is as had as too little. Paper, tightly compressed is a very firm substance indeed; and, in this position, holds much better than leather, which is rather slippery and too elastic for the purpose. It is better than sandpaper, which cannot be brought into such close contact with the shaft which is so essential to a good grip.

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### Chippewa Wants a Planing Mill and Lumber Yard

#### Splendid Opportunity for Working up Business In a Thriving Section

Builders in Chippewa, Ont., are placed at a great disadvantage as there is no planing mill or lumber yard in the village. Some years ago there was a planing mill in operation, but the proprietor sold out and the building was torn down. Ever since that time all building material has to be purchased outside, and delays in delivery are frequent. This not only causes a lot of annoyance, but is costly; the men often have to lay off. Add to this the freight charges and it will be seen that the contractors have good ground for their desire, and they would give a local mill man splendid support.

The conditions for doing business are excellent. Gas is only thirty cents per thousand, and electric power fifteen dollars per horse power.

The facilities for shipping are all that could be desired; good and plenty of dockage is to be had at a very small cost. Land would be offered on very attractive terms to a reliable man or company.

There are other inducements, the nature of which would be explained to interested parties if they will communicate with either Mr. W. R. McKenzie, reeve of Chippawa, or Mr. T. Flommerfelt, secretary of the Board of Trade.

Chippawa is bound to go ahead. Conditions there are vastly different now compared with what they were when the mill mentioned was done away with, and the establishment now of an up-to-date mill and lumber yard, carrying also a stock of builders' supplies, such as felt roofing, gravel, cement, etc., would soon lead to the development of other industries that would create a big demand for the output.

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### Cypress Coming Into Favor for House Trim

It is well known that cypress has been used for a great number of years in the manufacture of water tanks, distillery tanks, fermenting and creamery tanks; also churns. It is a wood that does not leave any taste or discoloration to the contents, and naturally finds favor for purposes mentioned. But its use in the planing mill is not so general as one would suppose. Still in some localities it is beginning to take the place of white pine for porch columns, balusters, railings, stair work and interior finish, etc. Practical proof of its efficiency for sash and door is furnished by the fact that a large number of men are substituting cypress for white pine. And builders like it.

Talking to a mill man the other day he explained that he could buy cypress at about $32.00 per M. and use every inch of it. This man's first experience with cypress was when he bought a car of 1½ for making sash and doors. It cost him $32.00 per M. He found that the percentage of waste in cutting up small in comparison with white pine at $48.00 per M. This led him to buy a car of one inch for interior trim, this apparently proving satisfactory. He commenced

using it for other purposes. Cypress is a wood that looks well when finished in the natural, or if color effects are desired these can be secured by the application of suitable stains; and a good finisher will do wonders and secure the most pleasant effect.

I think the mill man should be informed as to how cypress is to be finished in order to furnish door and panel work suitable for the finish specified. I was talking to a builder the other day about cypress trim who expressed a preference for the dark and light shades mixed. He likes to see the door panels dark and the stiles and rails light. I think few share his taste. Indeed, some builders refuse to accept dark cypress for the first and second floors. Other builders are not so particular and will take stock just as it comes from the mill—light and dark shades, small and large figure is all the same to them. They trust to the carpenter to use good sound judgment in selecting the material for each room so that there will not be any striking contrast such as would appear if one dark and light casing was put on a door or window frame.

It is careful attention to these details, together with the continually increasing cost of pine that is making the demand for cypress doors, dado work and interior trim so great; and it is safe to predict that next year more mill men will make use of this lumber.

### S. W. Dickerson, Humburton, Ont.

Mr. Dickerson, whose planing and turning shop was destroyed by fire about a year ago, has a fine cement building stocked with up-to-date machinery.

Up to a few years ago Mr. Dickerson engaged in building operations in connection with his mill business, but now confines himself to mill work only. This keeps him well employed meeting the demands of building contractors in and about Humberstone. Mr. Dickerson informs us that cypress is very popular among his customers and he is stocking up sheeting and moulding as well as doors of that material.

We noticed that the Shimer cutter heads are used for stock work in this mill—the only kind that pays, says Mr. Dickerson.

### Also Busy

Reichman & Son, of Humberstone, are also rushing. They have several large contracts on the way as well as a large amount of custom work. Yes, said Mr. Reichman, we will be on the jump all this winter.

### Niagara Falls, Ont.

We had a chat with Mr. James Harriman of the Simcoe street planing mills and found him busy as usual. Oh yes, said Mr. Harriman, we have had a good 1911, and the prospects are bright for the winter.

Mr. Harriman does a big business in Niagara Falls and ships to many outside points sash, door and blinds, interior finish and so on, and always has on hand a large stock of lumber, laths and shingles of the very best quality.

There are two other mills in Niagara Falls, both doing a good business, particularly the mill of Mr. Waugh.

Mr. A. E. Augustine, the proprietor of the Port Colborne planing mill of that place, has been active all through 1911, and in anticipation of having to work overtime during the winter has installed an electric lighting system in his mill. All the wires are in conduits. This is a safe precaution against fire that others engaged in wood-working industries would do well to copy.

Mr. Augustine has ample yard space with railway siding. Everything in the building line can be had at this plant, as a stock of lumber, laths and shingles are always on hand, together with paper roofing, metal ceiling and builders' hardware, etc.

The new plant of the Maple Leaf Milling Company has boomed the building trade in Port Colborne, and present indications all point to good business. Mr. Augustine will get his share.

### What Tardiness in Workmen Means

A statement in an advertisement in a late issue of a popular magazine says: "When a workman is late, the loss isn't simply on his time. The productive capacity of the machine is lessened, the full return is not obtained from the floor space, and the shop expenses for power goes on just the same." Altogether too many machine operators fail to take such things into consideration. When the management has promised an order at a certain time, and is right after the foreman because that order looks like it was going to come along a bit late, the foreman can't be blamed when he is cross with tardy machine men.

### Keep the Back Up

Bird's-eye maple veneer, says a superintendent of a prominent veneer factory, should always be put on with the back up. That is, the inner side of the veneer as it is peeled from the log with a rotary machine should be outside, for the bird's-eyes get smaller as you get nearer the heart of the log, and there is some danger of them coming out if the big end or outer side of the veneer is not turned in.

### How Will This Affect the Woodworking Industries?

Thos. A. Edison, who recently startled the world by saying he would make it possible to build a concrete house for $1,000, went further to-day, and declared that in the near future he would put on the market concrete furniture so that newly-weds, instead of adorning their homes on the instalment plan with $750 worth of dubious chairs, tables, etc., can invest $200 and rival "palatial residences" with their display.

The inventor has already made a reinforced concrete cabinet for the phonograph and pieces of furniture made in the new way are on their way to Chicago and back, to show what they can stand in the way of resisting handling by freight men.

At present the weight of the concrete furniture is about 33 1-3 per cent. greater than wood, but Edison expects to reduce the excess to 25 per cent. The concrete surface can be stained, Edison claims, so as to look like any kind of wood desired. His phonograph cabinet has been trimmed in white and gold. Its surface is like that of enameled wood.

"Not only is the concrete cabinet cheaper," Edison said to-day, "but it has better acoustic properties than the old-fashioned wood cabinet."

Do your share of work each day, pay your debts, save a little money, talk only when you have something to say, and you will assist the world in growing better.

### Preparing for Handling the Rocky Mountains Forest Reserve

Forestry upon the Eastern slope of the Rocky Mountains was only begun by the setting aside of 13,000,000 acres as a permanent public forest. In order that this area may be protected from fire, may be made accessible to lumbermen, settlers, ranchers and all others who wish to use it, and in order that it may be so developed that every acre be continually producing valuable timber, it is necessary that a great deal of improvement work be undertaken. This work both the construction of roads, trails, fire guards and telegraph lines, and the handling of timber sales will be conducted by the Dominion Forestry Branch.

In order that the work carried out by the Forestry Branch on the Eastern slope of the Rockies may not be of an experimental value but may conform with the best experience of the foresters of the continent the Director of Forestry is sending one of the officers of the Forestry Branch, together with Mr. Albert Helmer, Chief Forest Ranger in charge of work on the Rocky Mountains, to inspect and study the work conducted during the past few years on the National Forests in Montana. The United States Forest Service now has employed a trained staff of over 2,000 men and spends nearly $5,000,000 annually in building trails, telephone lines and forest rangers' houses on the National Forests and in making studies of the best way to handle logging operations so as to improve and perpetuate the forest without interfering with the settlers and lumbermen. Conditions in Montana are much the same as in Alberta, the management of the public forests in Montana has proven highly satisfactory to the ranchers, farmers, miners and lumbermen, and yet the forests have been so managed as to lessen the fire danger and insure the future protection of timber on all areas cut over. Canadian officials are very fortunate to be in a position to benefit by the practice in the United States.

### Fire Ranging System Should Be Extended

An interview with an engineer given recently in a western paper to the effect that there is abundant timber on the line of the Hudson Bay Railway is an illustration of the misapprehensfion in regard to this matter that exists in the public mind. Because there are large areas of land in the north on which there is timber of some kind, the conclusion is reached that it is all of present value and that the country has an unlimited supply. As a matter of fact a careful inspection of the timber along the line of the Hudson Bay Railway made in the years 1910 and 1911, by the Forestry Branch of the Department of the Interior, shows that there is not enough mature timber along the line of that railway to build the road. There are no prairie districts of any extent along the route, there are trees everywhere, but owing to repeated fires the forest is, except on the merest fraction of the area, too small for commercial purposes and unless it can be protected from fire until it reaches maturity, will never be of any use to the country. Explorations in other parts of the northern forested districts tell the same tale. Everywhere fire has worked havoc, and the forest is a mere wreck of what it might have been if fires could be prevented. And unless adequate measures are taken now to protect the young and immature forests which form the major part of the stand, the outlook for the future is none too good.

If the northern forests are to continue to be a permanent sourse of wealth of the country, it is absolutely necessary that the fire ranging system should be extended and that proper methods of management of the forest should be applied, and public education to the value of the forest is even more necessary.

In Sweden, which has large extents of northern forest, practically uninhabited, similar to those in northern Canada, has about eliminated the fire danger in such districts mainly by educating her people to the value of the forests.

### Canadian Forestry Statistics

Ontario still produces a little over one-third of the quantity of the lumber cut annually in Canada, but its annual cut, while increasing, is increasing more slowly each year. Ontario's 1909 cut was 17 per cent. greater than in 1908; its 1910 cut was only 7.5 per cent. more than in 1909. The Forestry Branch of the Department of the Interior has compiled statistics showing that 1,642,191,000 feet of lumber worth $30,011,000 was cut in Ontario during 1910, but that British Columbia will be Canada's premier lumber province in a short time. The diversified forects of Ontario have enabled this province to hold its supremacy up to the present, as illustrated in 1910, when the chief cut of seventeen species came from Ontario. White pine to the value of $17,743,074 came from Ontario forests and formed 85 per cent. of Canada's white pine cut. Nearly half of the hemlock cut in Canada in 1910 was cut in Ontario as was over 90 per cent. of the red pine. Ontario contributed over 70 per cent. of the hardwoods. Of the total made up by 23 species cut in Ontario, over one-half was white pine. Red pine contributed 10 per cent., hemlock 12 per cent., leaving 25 per cent. to be equally divided among the hardwoods and less important conifers. To arrive at the correct amount cut by lumber mills of Ontario in 1910, there must be added to the above lumber cut, 1,976,000,000 shingles worth $3,557,211 and 851,953,000 lath worth $1,943,544.

### Tight Cooperage Manufactured—1910

Tight cooperage barrels are used in the shipping of wines, whisky, beer, ale, oils and other liquids, and the stock used is required to be clear and of a species which will not impart its resinous or other taint to the contents. For these reasons oak, preferably white, is the principal wood used by the trade, and as this species cannot be obtained in Canada, the large shippers import it either as staves or in the log, from the United States. In the latter country, however, gum and basswood are rapidly taking the place of oak in sawed tight cooperage, so that in a short time a change may be looked for in the woods used in Canada. Statistics compiled by the Dominion Forestry Branch at Ottawa show that the tight cooperage industry in Canada During 1910 amounted in value to three hundred and forty-five thousand dollars. Nearly four-fifths of the total value was composed of staves, while heading to the value of $72,000 made up the balance. The stave production was as follows: 7,137,000 sawed staves worth $195,788; 923,000 ale and beer worth $44,814; and 319,00 bucked and split worth $72,240. Oak formed nearly three-quarters of the sawed staves, all the ale and beer staves, and all the bucked and split. Gum, a species of wood not hitherto reported, which should prove itself very satisfactory on account of its durability and freedom from flavor, stands third in the sawed

stave table. In one year, with a production of 437,000 staves it surpassed all the native species except spruce. To fill the demand for tight cooperage in Canada, imports as reported by the Department of Trade and Commerce, were as follows for 1910: 7,220,000 oak staves valued at $200,672; stave bolts to the value of $81,888 and 93,811 empty barrels worth $112,126.

### Slack Cooperage Manufactured—1910

The production of slack cooperage is a much greater industry in Canada than tight cooperage, which is due to the shortage of Canada's hardwood lumber supply and to the fact that there is very little timber now growing in Canada of sufficiently fine quality to make barrels for the containing of oils and liquors. The Forestry Branch of the Department of the Interior states that reports from 133 cooperage plants in Canada show that over four-fifths of the total value of cooperage produced in Canada during 1910 was composed of slack cooperage. The total value of the slack cooperage stock was $1,395,545 and was made up as follows: 104,821,000 slack staves worth $736,960; 9,860,000 sets of slack heading worth $330,480; and 38,244,000 hoops worth $328,105. In the manufacture of slack staves in 1910, fourteen kinds of wood were used, for one of which, elm, a production of over sixty million staves was reported, and for six of which (beech, cottonwood, hemlock, pine, oak and cedar) a total of less than two million was reported. Although the proportion of four-fifths of the total formed by elm and spruce is the same as in 1909, spruce is slowly becoming more important as a stave wood. Over two million more pieces of spruce were produced in 1910 and five million elm staves less than in 1909. Every species of wood used in stave production except cottonwood and cedar was used in the production of heading, as short lengths and pieces not suitable for staves can be readily used for this purpose. The percentage of the heading manufactured from each of the heading species was: basswood, 37.7 per cent; poplar, 19.3 per cent; spruce, 14.7 per cent., and elm, 10.7 per cent. Elm is the principal hoopwood, contributing in 1910 over four-fifths of the total. Over a million hoops each of spruce and poplar were produced, and with elm form nine-tenths of the hoops manufactured. More elm is used in Canada for the manufacture of slack barrels than for lumber.

### Lumber Waste for Pulpwood

For the purpose of manufacturing the four hundred and seventy-five thousand tons of wood pulp produced in Canada in 1910 nothing was used except logs of various species, which as our timber supply decreases are becoming valuable for lumber and other uses. No slabs or other sawmill waste was reported as being converted into wood pulp by neglecting which practice Canada is losing greatly. During 1909 in the United States six per cent. of the total consumption was from slabs and mill trimmings. If economy had been practised to the same extent in Canada during the year 1910, as much pulp might have been produced as from thirty-six thousand cords of wood and not one pulp log need have been cut. This would have made twenty per cent. more pulp than Nova Scotia produced in 1910.

Looking at the subject from another view point the gain might have been much greater. Over one-half of the five billion feet of lumber cut in 1910 passed through mills at centres of large population where the slab waste of one-half cord to every thousand feet of lumber might have been saved from the incinerators. One cord of pulpwood will produce at least one-half ton of pulp so that one and a quarter million cords of slabs obtained would have produced at the lowest estimate six hundred and twenty-five thousand tons of pulp. This amount is thirty per cent. more than the total of four hundred and seventy-five thousand tons of pulp produced in Canada in 1910. The sooner such practical economy and utilization of wood waste commences the longer will Canada have an adequate supply of pulpwood.

## Plant to be Erected in Vancouver for the Preservation of Railway Ties

Two plants are now being established for the chemical treatment of railway ties. One is being erected at Fort Frances, Ontario, and the other is being started at Winnipeg. It is stated that a plant will also be erected at Vancouver. The plant at Ft. Frances will be capable of treating 2,000 ties per day. The zinc-chloride-aluminum patent immersing process will be used, which both prolonges the life of the timber and renders it fireproof. It is questionable if this process will give as good results in Canada as would creosote.

This is a matter which for some years has been necessary for the preservation of the forests of Canada. At the same time it would have reduced the annual cost of railway maintenance. The average life of untreated ties as reported by the steam roads is: cedar, 9 years; tamarack, 8 years; hemlock, 7 years; Douglas fir, 7 years; jack pine, 6 years; spruce, 6 years. As may be noted from the tables, cedar is the species principally used, because of its durability, but the supply of cedar is rapidly becoming exhausted. Unless preservative treatment of ties is introduced, the species of short life will have to be used untreated, which, on account of the necessary frequent renewal, will increase the cost of mileage maintenance. If treated ties were used, which would cost about 30 cents extra per tie for creosoting and equipping with tie plates, the inferior species, which are very plentiful and cheap in Canada, could be used with economy. With such a treatment these woods would last at least 15 years, and if protected from wear would probably last much longer.

The lodgepole pine of the west would be greatly increased in usefulness by this treatment. This species is used chiefly for mining timbers and props and occurs, fire-killed, in vast areas on the mountain slopes of Alberta and British Columbia. It cannot be used for lumber, on account of checking, and, if untreated, it lasts only about 5 years when used for railway ties. At present this wood stands dead and perfectly seasoned and would take chemical treatment readily. after which it would make lasting and economical ties. By the use of such inferior qualities of timber, railway companies would assist conservation and at the same time decrease the cost of railway maintenance.

## Wood Staining and Finishing

Wood staining is very much like textile dyeing, in that we may mordant our surface, and get many colors not otherwise obtainable. Thus we can use certain chemicals in connection with certain pigments,

getting some very handsome colors. Like the dyer, we can treat our material, the wood, with a certain color, and on this apply another in the effort to get a certain rich and full color effect not otherwise to be had. As regards color, there is almost no limit to the range that is at our service. This is where the art comes in, and where the valuable man finds room in the best shops. A man good with colors is truly a valuable man in the finishing room. In this connection he should have a knowledge of certain chemicals, useful with stains, and in staining. In fact, his shop should be a laboratory and he a chemist—yes, and a wizard with colors.

There is the matter of matching old wood to new, with stains. How should it be done? Well, you may darken wood with ammonia or iron sulphate, or vinegar and iron filings. You may lighten it with oxalic acid, to which add a little spirits of nitre in hot water. Bichromate of potash is a brown stainer, one ounce to the pint of water. If you wish to renew a bright yellow wood or match it, use gamboge stain—gamboge dissolved in alcohol. If red is to be matched, try alkanet root soaked in sweet oil for a day, or benzine colored with camwood.

This is merely a hint of what work lies in the direction of the laboratory of the wood finisher. He must have a perfect knowledge of all things that concern wood finishing and particularly staining. There is not only the great family of aniline dyes, but the vegetable, the mineral or earth pigments, and the chemically prepared ones. All are to be used by him, and as I have already stated, there are the chemicals, too. So that it is easily seen what a lot a finisher should know, to be at his best. Even where a full knowledge may not be called into use, as it is not in most shops, yet it is always best to be perfect master of your art or calling, for that leads to possible promotion.

# Jointing Veneers--Under-Cutting Not Necessary

A common mistake, that one not accustomed to veneer using is likely to make in connection with jointing veneer with a hand knife, is cutting under in jointing so as to insure a tight fit of the face or top, an idea that is frequently carried out in joinery. We find it in floor-making and in jointing various kinds, the back or under side being cut away more than the face, so that the joint will come up tight on the face. However, this has already been found a mistake in connection with hardwood flooring, because when, in the process of smoothing down, the top of the floor is cut away a little, these joints open by virtue of being cut at a bevel. This same thing happens in connection with a veneer point. If you cut at a bevel, fit the joint neatly together on its face, then in the process of cleaning off, if it is necessary to take considerable of the thickness away here and there, the joint will open up and be unsightly because of its having been cut at a bevel. The best joint and the only true one is to cut perfectly square through the thickness, so that it fits neatly from top to bottom. Therefore, whether making a veneer joint by hand or by machine, this point should be kept in mind and the cutting be square through the stock.

There are various methods of jointing and new machines and appliances being brough out right along, so that soon one should be enabled to take up with whatever method best suits the kind and quantity of veneer being used, and get excellent results—that is, get better results than by the older method of trimming by hand. Where only small quantities are used, a sharp knife and a straightedge are the general tools for pointing face veneer. Some vary it by clamping the veneer in single sheets or several sheets at a time, between two boards or pieces of boards, and jointing them with a plane pretty much as one would joint the edge of a board. Sometimes this is varied by laying the board down and having a special rest for the plane. This and the knife-trimming method are both rather slow and tedious, and, though they may be used to help out even in large veneer-using establishments, it is generally better to adopt more positive and up-to-date means for jointing veneer.

One can make excellent veneer joints with a rip saw properly filed and set, provided, of course, the veneer is held firmly during the sawing. There is a type of saw-jointer made in which the veneer is held firmly in a clamp and the saw travels. Also, there is a type of rip saw having a travelling carriage, that might be converted into a veneer jointer by providing some means for clamping the veneer to the carriage and seeing that the carriage is carefully adjusted and runs true and smooth on its track. Also, one might take an ordinary table rip saw, and, by using a slide like that resorted to for cutting special forms on such saws, joint veneer in limited quantities and do a nice, positive job of it, and make much better headway than jointing with either a knife or a hand plane. Then there is, of course, the chopper or foot-power knife-jointer used in connection with veneer factories, but where only a small quantity of veneer is used, a jointer of this kind would hardly be justified, whereas one could easily rig a slide and board on an ordinary rip saw table and joint veneer.

Where there are quantities to be jointed that will justify it, there are special machines that joint and tape all at once. There are also new machines of this type being brought out from time to time, some for users of smaller quantities, and eventually these will undoubtedly be featured with a wide enough range in variety and style to enable any user of veneer to get just such a machine as will fit his peculiar requirements. Also, there may be developed knife jointers operated by foor power that will help out considerably —a machine something like a paper-cutter. All of these things are worth looking into, because hand-jointing is too slow in these days, takes up too much time, costs too much money, and is too uncertain. It is easy to get more positive methods and at the same time make better joints and save expenses. Therefore, every interested man should not onlywatch the advertising pages of the trade journals, but make inquiries from time to time about jointing appliances, so as to be sure of getting the best offered for his own peculiar kind of work.

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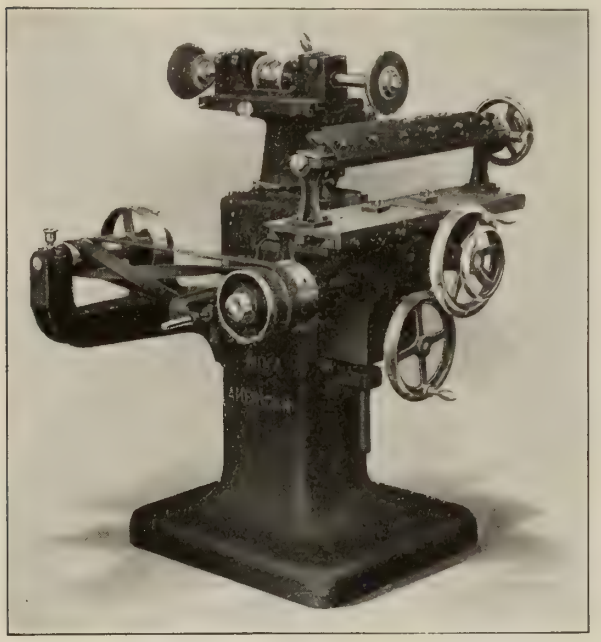
The building permits issued at London, Ont., during the current year up to November 30th totalled $849,327, compared with $741,989 of the corresponding period of last year.

# With the Machinery Manufacturers

### A New Grinder

The accompanying illustrations show three views of a new grinding machine which has just been added to the high grade AMERICAN line.

The manufacturers call this machine their No. 4

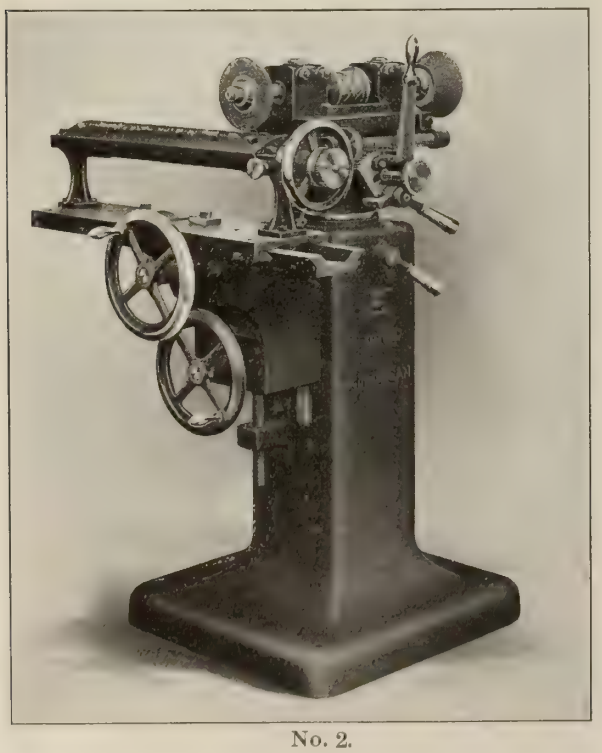


No. 1.

Universal Grinder, and they claim for a filing room tool it cannot be beat.

Cut No. 1 shows this machine as a thin knife grinder with power feed attachment. No. 2 is the same with hand feed only. No. 3 is a view of this machine as a cutter head grinder.

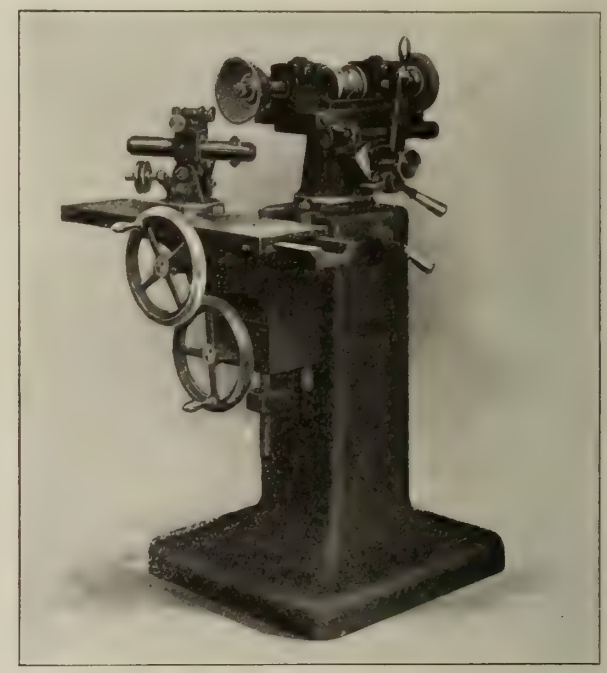
When used as a cutter head grinder, there is a



No. 2.

stand for side heads, and an attached double arbor for right and left hand heads, which are secured to the carriage, and an adjustable indexing stop holds the heads at various points for grinding the cutters.

Primarily this machine is a matcher or cutter head grinder, but by the use of an independent attachment, which the makers call their "Plain Knife Clamping Bar," this machine can be converted into a tool for grinding thin steel knives, for which either hand or



No. 3.

automatic feed can be supplied. This change can be made in a very few minutes.

For mills desiring a universal grinder, this should prove a very effective tool.

You can obtain any further information, or a circular of the machine, by addressing the American Wood Working Machinery Company, Rochester, N.Y.

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### The Falls Patent Undercut Face Planer

When the power feed rip saw was first put on the market, it did not take long for the progressive manufacturers to recognize its superiority over the old style hand feed rip saw.

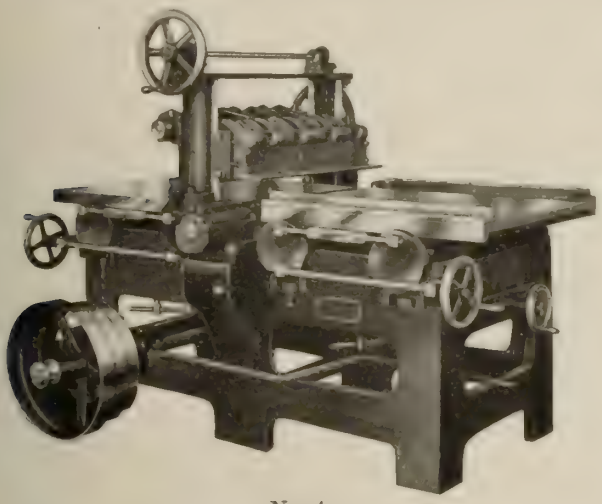
Since the advent of the power feed rip saw, another machine has been brought out. It is the undercut face planer, and as a labor saving device, bears the same relation to the hand buzz planer, as the power feed rip saw bears to the band feed saw.

The illustration conveys an excellent idea of the general construction of the number 820 undercut planer. It will be noticed that there are four rolls, each acting independently of the other. This means that narrow strips no matter how badly warped may be fed under each roll at the rate of 15 ft., 30 ft. and 45 ft. per minute, and the quality of the work will be absolutely perfect.

Wide stock is worked in this machine as easily as narrow, the rolls being so designed that they get a grip on the board sufficient to carry it forward without exerting enough pressure to spring it down, even if the stock is so crooked that the cut is not car-

ried all the way across the board. They rise and fall with its irregularities and conform to the crooks in the stock. In fact, the mechanism is almost human. With the added advantage of a continuous feed, remember, at 15 to 45 feet per minute according to nature of the material being worked, whether hard or soft wood.

The frame is heavy and cast in one solid piece,



No. 4.

giving the machine a firm foundation. The large hand wheel adjusts the feed rolls to accommodate stock up to six inches thick on the regular machine; and up to three inches on the special short stock machine. The cylinder and spindles are a solid forging at high carbon steel slutted on two sides. The arrangements for adjusting the tables is such that the edge is kept constantly within 3-32 of the knives thus affording a good chip breaker. Another interesting feature is that provision is made for cutting hollow and crown points as well as surfacing stock.

Another and a very important point about this machine is that the operator cannot get his fingers in the knives.

There is no disputing the fact that this machine is of incalculable value to the furniture manufacturer and planing mill man. In short, all manufacturers who have occasion to use a surfacing machine would do well to write to the Canada Machinery Corporation, Limited, Galt, Ont.

### A New Furniture Factory Tool

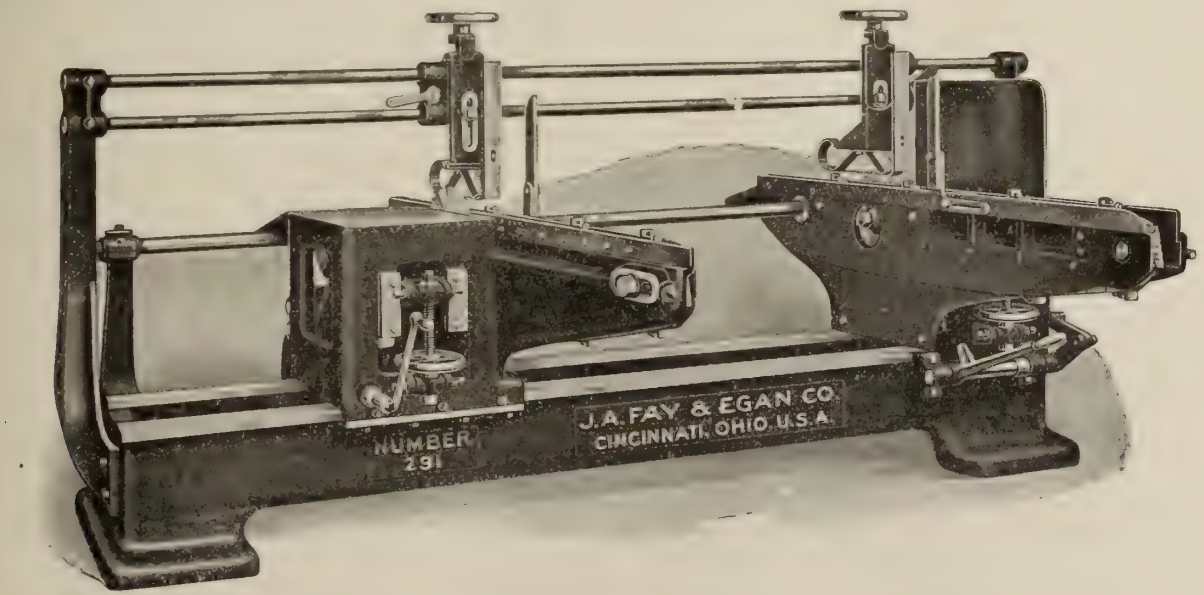
Another new time and labor saving machine has been brought out by the J. A. Fay & Egan Company, at their big plant in Cincinnati. It is called No. 291 Automatic Double Cut-off Saw with Hopper Feed and a photographic reproduction is shown herewith.

The claim is made for this machine that it will do as much work as eight or even ten of the hand feed machines now used, at the same time cutting off more accurately than is possible by the slower method.

As regularly made it can be set to cut-off up to 6 ft. 6 in. long and 20 in. wide. For the wide stock the hopper feed is not used, as the operator can easily keep the machine filled to capacity without it. For stock 3 in., 4 in., 5 in., 6 in., 7 in., and 8 in. wide, however, the hopper feed is used. The operator simply picks the stock from the truck by the armful and dumps it into the hopper. The bottom piece always rests upon slides between which runs a chain made of milled steel blocks. At intervals in this chain are steel dogs. These dogs take hold of the bottom piece in the hopper, carry it under the pressure springs past the two saw blades which trim both ends square, and then feed out the pices to the offbearer at the rear of the machine. A continuous stream of boards comes through the machine, in fact the only limit of the quantity of work done is the offbearer's ability to take care of the stock as it comes out.

This chain is practically the entire mechanism of the machine, in fact, simplicity was a feature aimed at in its construction, so that any ordinary furniture factory employee could operate it. The chain passes over milled sprockets, preventing any jumping, and each dog has a separate micrometer adjustment, insuring absolute accuracy at all times.

The right-hand housing on this machine is stationary. The left-hand housing, carrying the saw, moves back and forth on wide planed ways, by means




of a crank operating through a rack and pinion. The machine can instantly be set to cut-off to any length within its capacity. In the large furniture factory this machine should pay its first cost in two or three weeks on labor-saving alone, in addition to doing more accurate work, taking up less space and requiring less power than the eight or ten hand or foot operated machines it will replace.

In the smaller shop, too, it will prove to be a great

cost-reducer. In one hour it will cut off as much as the old style machines will cut off in a day. Your operator can be employed on other work the remaining nine hours.

This is a case where first cost should not stand in the way. It's a machine which will eventually supersede all of the others, and the furniture makers who realize this fact first will reap the advantage over their competitors who are slow to change to improved manufacturing methods.

Further information can be had by addressing the J. A. Fay & Egan Co., 153-173 W. Front street, Cincinnati, Ohio.

## The Tale the Band-saw Told

I have been so long in use that about every inch of me is covered deep with dust—all but the table; this is kept clean as a new whip just ready to the hand. There are many machines that have never had the good fortune that has come to me; they stand in their places year after year, listening to complaints and, I am afraid, sometimes oaths, because the workmen cannot get them to act as they want them to while saws are running over their wheels.

We are told the machine has no brains. How often I have heard some ignorant man say "cuss" words while standing in front of me, because I would not do what plainly he ought to do. If he would just understand me as well as I do myself, we could quickly come to a point where everything would go like clockwork. Now, there is the good workman who sometimes comes to visit me. He talks to me, too, and I understand what he tells me, and when anything goes wrong I tell him in a language of my own, and he understands. Brains, I should think so! As a matter of course, I don't talk much, nor ought I to be expected to. Rather, should men learn my language instead of finding fault with me, because my tongue is different from theirs. If they did this, I should not make them half so much trouble.

I don't like to make trouble, but sometimes I have been so hot, and have ached so in my joints because I have nothing to feed on, that I could not help it, and I must cry out. Again, if I conclude to grin and bear it as long as I can in spite of the pain, I get worn and my bones grow so loose in their sockets that I wabble and jerk and twist sidewise, both front and back, sometimes in an arm and sometimes in a leg, and sometimes in both arms and legs. It is not my fault. The stupids ought to know what I need to make me comfortable and accommodating. But instead of this they generally think I am simply obstinate. If a saw breaks running over my tired, wabbly frame, they look at me with goo-goo eyes and say nasty things, often taking me by the arms and legs and shaking me until I get so mad that I simply will not work. Wouldn't you do like that if you were abused? Think of having to pull yourself together when you were half dead.

Finally, some one who has more sense than the rest comes along. He is not a bit choise in the way he says things, nor very particular to be polite. He tells them they need not lay the fault on me for I am worn and needed mending, and will be alright when I am toned up; that they need not lay it to the machine, for a band saw must have a strong, steady frame to run upon or it will not work as it should.

He hustles about, babbitting here and there, tightening up my loose joints, puts some new rubber on my wheels, and administers a lubricator to every sore spot. The very touch of his hand makes me feel better, and when it is all done I feel a dozen years or so younger.

I know the secret of his success. It is the knowledge of what I need to make me comfortable. The owners simply would not let that man go. The saws hum merrily as they run over their wheels and do their work splendidly. There are no longer any breaks. And this man who has been such a faithful friend to me is also a friend to the other workmen, and we are all great chums, now that we have become acquainted and all understand each other. I am no longer abused by ignorance. This leads me to remark that when such trouble appears in a band saw there is just one thing that will remedy it. That thing is intelligence. Apply it; then will disappear all the bother and fret about poor work and broken saws.

This is the tale a band saw told me.

## Saws Set with Diamonds for Stone Cutting

Circular saws set with seventy to one hundred diamonds in place of teeth have been used in stone-cutting, but they are adapted only for small work, and a new development is a diamond bandsaw, which can cut through stone to a depth of six feet or more. This is now so perfected that it can saw marble or limestone at a speed of two inches per minute, although the old method of working a steel plate on a damp bed of sharp sand or shot could not exceed six or eight inches an hour.

One of these saws already in operation in Somersetshire is a finely-tempered band of steel set with 276 diamonds, which vary in weight from half a carat to a carat, and alternate from side to side of the edge at intervals of two inches.

There are no projecting teeth, the diamonds being felt by the finger only as a slight roughness of the steel. The diamonds are uncut, with no show of brilliance, and they are held in steel sockets, in which they have been fixed by means of electric welding.

## Building Western Branch

Owing to the rapid growth of the business of the Canada Metal Company, Limited, Toronto, and the great demand for their goods in the West, it has been found absolutely necessary to build a factory in Winnipeg. Commodious premises have been purchased on Chambers street, and all the machinery is being installed under the personal supervision of W. G. Harris, Jr., vice-president of the company. No expense has been spared to equip this factory with modern and up-to-date machinery and appliances.

Once The Canada Metal Company make up their mind that a thing is necessary, no time is lost. To give an idea of the go-ahead methods of this most progressive Toronto firm, it is only necessary to state that though they did not get possession of the premises on Chambers street until November, yet everything will be in full operation by the first of January. It is no idle boast of this firm who claim to be the largest exclusive metal dealers in the Dominion of Canada.

Nixon's logging camp at Beeton, Ont., has been burned. The loss is a very heavy one, entirely unprotected by insurance.

### Should We Have Large or Small Kilns?

That depends on the amount to be dried and how quickly it must be done. Ordinarily, for prompt work, a bank of several small kilns has advantages over one large one; various kinds and thicknesses of lumber may be handled independently. Thin stock and softwoods dry more quickly than thick or hardwoods. Some kinds of wood require different treatment in the kiln than others, and, taken all round, the smaller kilns can be loaded and unloaded in shorter time. Should it be necessary, more help can be employed and each kiln rushed to its full capacity, without in any way retarding the drying or getting at of any special lot of lumber. I can only conceive of one instance where the large kiln has any advantage, and that is where a large quantity of one kind of a certain thickness is to be handled constantly. In such a case I should want a kiln that would handle the daily output without interruption.

Speaking of kilns, how few there are who can operate a dry-kiln scientifically and satisfactorily, without spoiling lumber by splitting or warping, case-hardening or checking! The regulation of spaces between the piles, between the layers and between the pieces in the layers; the amount of heat, the moisture and the withdrawal of the same( are all points that need to be understood to a nicety. The condition of the stock as it goes in, its dryness, its general character, and shape, size and use, all have an important bearing on the treatment it should have. How many drykiln operators take these conditions into account and treat the stock accordingly?

We could all benefit by giving this subject more careful thought and attention. Lumber would come out in better condition, with correspondingly less loss through ill treatment; and, incidentally, some of us could make a specialty of this branch of the planing mill industry, to our own and the proprietor's mutual advantage, from a pecuniary point of view.

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Regular physical exercise makes for the development of the muscular system. By moral and intellectual effort we grow in mind and soul. Without self development we deterioriate, we are old, out of date before our time. To strive to do the best work that is in us is one of the secrets of happiness and eternal youth, whether the work be with the hands or the head. The knowledge that we have cooked a dinner, written a book, painted a picture, scrubbed a floor, or bedded out the flowed beds to the very best of our ability makes us feel in harmony with our surroundings. That is happiness, a happiness which the idle person can never know. Apart from higher motives, it is only common sense to do the best we can with the means we have at hand, to read and study and take an interest in life generally, to utilize any gifts of mind we may possess—thus we shall know the happiness of achievement. We shall strike a note of harmony in the world and win a joy which no material benefits or worldly wealth can impart.

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### Bark and Squeal

"Nothing lost here but the squeal," declared the pork packer. "Are you as economical in conducting your business?"

"Just about," answered the visitor. "I'm in the lumber business. We waste nothing but the bark."

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Every hearth or fireplace in England was taxed in the reign of Charles II.

### Ambiguous

"Did your late employer give you a testimonial,"

"Yes, but it doesn't seem to do me any good."

"What did it say?"

"He said I was one of the best men the firm had ever turned out."

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### Scientific Industrial Operation

The gist of "scientific management" was set forth in a paper presented at the Congress of Technology recently held at Boston, Mass., by Tracy Lyon of the Westinghouse Electric Co., Pittsburg, Pa.

It is natural to assume, said Mr. Lyon, that when a man has worked at one task for years, whether on a machine tool or at manual labor under ordinary competent supervision, and with the advantage of his own experience and trade traditions, he has reached a degree of skill and speed which could be increased by expert instruction in only a small degree. But this is not so and therein lies the keynote of scientific management.

It has been demonstrated, he claimed, that a man can be taught to double or even quadruple his output, with no greater, and with even less physical exertion, by means of a use of tools and a distribution of effort which unaided he would be incapable of evolving.

In order to bring out the best and most intelligent effort on the part of most men, said Mr. Lyon, it is necessary to establish and recognize a reasonable measure of their efficiency, and to develop this efficiency to its highest degree. There must also exist methods of compensation which will offer a comparatively large return for increased individual effort; an organization which will effectively plan in advance to bring together at the right time all information, tools and material required, and which will furnish adequate instruction and supervision and a carefully considered arrangement of appliances and machinery which will bring about an economical movement of the work.

A very essential function of such an organization is to create a feeling of co-partnership between employer and workman and an understanding that the employer is not trying to get the most for the least wage, but is willing to pay liberally for increased output and efficiency.

Mr. Lyon was further of the opinion that many manufacturers do not know what the real and actual cost of their product is, particularly if it is diversified, because of a lack of adequate cost accounting and because the overhead or general charges are not properly distributed, to their own detriment as well as to that of the public. This is not an easy question to solve, but there are scientific methods of accomplishing it.

He believed that railroads would purchase many articles they now manufacture if they had a truer knowledge of their shop costs—railroad shops have no balance sheets to face and do not necessarily go out of business if they are not making money.

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### Increase of Capital of a Company

The Goose Lake Grain & Lumber Company, of Saskatchewan, has increased its capital from one hundred and fifty thousand dollars to two hundred thousand dollars.

# The Glue Salesman Puts Up a Talk and Says Something

"There are a lot of mighty good veneer manufacturers," said the glue salesman contemplatively, as he spat into the sawdust box at the depot while waiting for the next train out, "who don't know much about the glue they're using.

"Oh, yes, I got the order. I wasn't kicking because this fellow here didn't buy my stuff, but because he insisted, unsight and unseen, as it were, on classing all glue together—quality, tensile strength and all the rest of it.

"When I go into a man's plant, I do so with the expectation of studying his line of production and glue requirements thoroughly. I managed to save one of my customers $300 a month in his glue expenses not long ago, simply by showing him that he was using too little water in his mixture for some of his work. Then in another department, where he was using high-priced goods, I found that he could get effective results with a less expensive grade, and I'm selling him that now.

"No, I'm not magnanimous; not if I know it, that is. But I'm selling glue, and I know my business. I know that if my stuff gives satisfaction I can come back and sell another lot. If it doesn't, the veneer man will buy his glue stock somewhere else next time. And, mind you, when there is trouble, it's always the glue manufacturer's fault. The laying of the veneer is never wrong, and if the panel doesn't turn out the way it should, it is because the glue isn't right.

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"And I know that if I can apply my expert knowledge along this one line to the business of my customers in such a way as to save them money and enable them to produce better goods, I'm going to continue to get their business. So I'm trying to point out a few of the ways in which they can do that, without hurting their feelings, and endeavoring to produce Satisfaction with a big S, spelled in pica type, instead of the nonuareil they've been u'ing. I used to be in the printing business, you see.

"I'm working for a good house. Sure, we all are. I know that. But I mean that our glue is the real stuff. We've got the best chemist in the business, and he knows as much about blending and grinding glue as a Main street rectifier in Louisville knows about producing twenty-year-old hand-made sour mash. His glue is glue that is glue, and that, let me tell you, is some glue. When it goes into a piece of work, provided the veneer man hasn't burned the gizzard out of it in the making, it sticks like the fellow you borrow that ten-spot from the day of the races. It does the work.

"What I'm complaining about is that the average man doesn't keep enough 'dope' on what my glue does and what the other man's doesn't do. If mine holds the stuff together and delivers the goods, I want to get the credit for it. But, likely as not, even if the stuff is working O. K., one of my 'esteemed contemporaries,' as the editor of the Kokomo Bugle, where I used to work, called the publisher in the next county (not the man in the same town—not by a jugfull; you ought to 've seen the names he called him), will put up a mixture to my customer, claiming it's 'just as good' and all the rest of it, and agreeing to knock off half-a-cent a pound if he'll order ten barrels as a sample lot to see how it works.

"Well, that reduction in the price looks good to Mr. Veneer Man, so he gives the order to my competitor, and maybe gets a lot of junk stock that you could smell from here to the courthouse on a warm day. Honest, when stuff like that gets to working, the men in the glue room think they're in a South side lodging house, with the wind blowing from the stock yards. It's fierce!

"The veneer man sees he's made a mistake, and by the time I've got back to him he's ready to admit it; but he hasn't finished using up his bum glue, and he doesn't want to buy any more until he gets rid of it. So he holds up the order, and maybe he'll forget about what a rotten consignment he's had by the time another fellow comes around with a job lot of bone-stock glue and buy on the strength of saving a few dollars on the order.

"And then he wonders why the furniture manufacturer he's selling to gives his business to somebody else.

"Of course, it isn't all in the glue, but I should think that a lot of good business men like panel manufacturers would keep records of the character of the glue they buy; how much it costs; how many thousand feet of stock 100 pounds of glue of my kind and the other fellow's cover, and the relative cost and the relative satisfaction that attaches to each kind. Figures extending over a year or two and covering glue operations would tell some interesting stories, I imagine.

"Glue is animal matter held in solution by water. Everybody knows that. Now, animal matter deteriorates, as anybody who ever discovered that an automobile had run over the neighborhood dog without resorting to any sense save that of smell can testify. For that reason common sense would suggest that it is well not to make more glue than is going to be used. It isn't advisable even to make enough at one time for use in one day. A supply for half a day or less is best, and at the end of the day there should not be any left over. This takes close figuring, but it's worth while.

"Suppose you have a batch of glue in gelatin form standing over night, or over Sunday, as some of my friends in the business occasionally do. What is going to happen? Deterioration is a mild word to apply. And yet, in spite of the obviously poor character of the material, I have seen some high-class mahogany, Circassian walnut and quartered oak panels laid with glue containing part of an ancient—comparatively—batch of glue which ought to have been thrown out of the shop.

"It's poor economy, to my way of thinking, to put cheap or decayed glue into high-priced work; and yet that's what I have seen done lots of times. I'm not saying this to everybody, but the practice of carelessly allowing glue to stand around for days at a time is the best argument that manufacturers of glue made from vegetable matter have. Their stuff isn't as good as ours—why, certainly not!—but they've got a pretty good talking point there, as well as in the lower price of their goods.

"Every vessel used in handling glue, as well as the main kettle in which it is prepared, ought to be thoroughly cleaned at least once a day, preferably at the end of the day's work, so that none of the old material will get into the fresh glue and impair its quality. It's as bad to put deteriorated glue into a batch of fresh, clean material as to offer a guest a

plate of fruit, some of which is past the mellow stage.

"Glue isn't a very romantic subject to think or talk about, but it's one of the most universally used substances. The next time you eat Jell-O, just remember that it's the second cousin of the glue they're using down at the veneering plant, and you won't feel so bad over the latter—nor so good over your Jall-O. But there's no reason why gelatin shouldn't be an excellent food product, and the success of that which I have mentioned shows that, properly handled, the public will buy anything. You probably couldn't sell as much Jell-O if you emphasized its relationship to glue, but that's no argument against it.

"The glue men are willing to tell all they know. They haven't been investigated by the government, but they're not as tight-mouthed as they used to be. If you have any trouble getting satisfaction out of the glue you're using, just let me or any other high-class glue man know about it and we'll be glad to put you straight. Here's my card, and there comes my train. So long!"—Hardwood Record.

### How Electricity is Measured

Few of us, outside engineering circles, know how that mysterious servant, electricity, is measured. We only know that the regular monthly bill calls for "1567—1543=24 k.w. hr., for which please remit $2.40." Many of us have gone down cellar, or up in the attic, with a lighted candle, to stare with mystified wonder and profound awe at the little mechanical meter, with its incomprehensible dials and unreadable figures, only to wonder what it was all about.

The fact is that electricity, or, strictly speaking, electric energy, is measured in kilowatt hours. A kilowatt hour is practically the same as 1 1/3 h.p. hours, since 746 watts equal 1 h.p. The watt is a rate of work just as a horse power is a rate of work. One tells how hard the dynamo has to work, while the other tells how hard a horse or engine has to work to produce the required energy.

The measurement of electric power may be simply explained thus: The current enters the house and a certain fraction passes through a small motor contained in what is called a "meter." The moving part of the motor, or armature, is connected to an ordinary counter, such as used on bicycles, gas meters and automobiles. This system of toothed wheels is arranged to count the number of watt hours of electricity. A thousand watt hours is called a kilowatt hour. The prefix "kilo" always means 1,000. A kilowatt hour costs about 10c. If the result is desired in horse-power hours, it is only necessary to remember that a kilowatt hour is the same as 1 1/3 h.p. hours.

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Eleven hundred pianos were sent last year to Manila alone.

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You may make a man work harder by making him angry, but it is very seldom that you can make him do his work better by this means.

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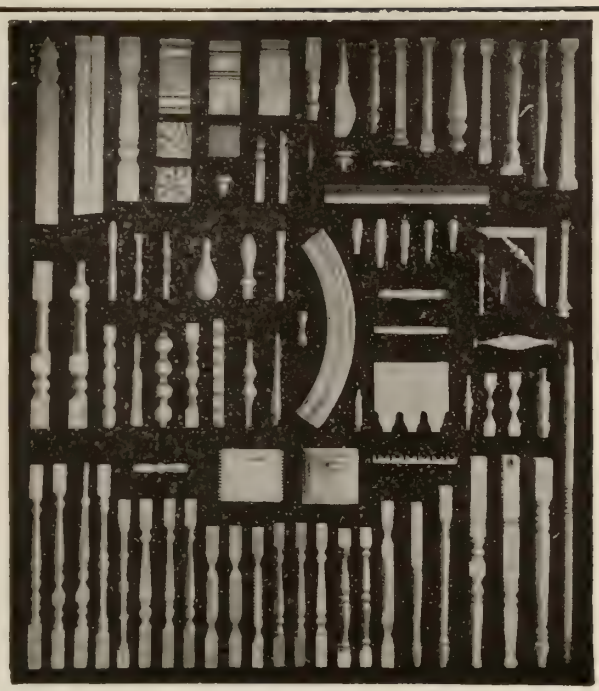
One gallon of mixed paint will cover from 25 to 30 square yards of stone work; 50 to 70 square yards on wood work; 80 to 90 square yards on iron work; and 40 to 50 square yards on plaster.

One pound of mixed paint will cover wood four yards for the first coat, six yards on the second coat, and seven yards on the third or fourth coat.

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**Our Universal Turning and Variety Machine**

will turn out as much work in a day as a skilled man can produce in six days. Turnings and mouldings of limitless variety and pattern, and equally adapted to panel raising, jointing, cabinet sowing, etc. Because of its wonderful versatility, you will find it "always on the job." Built like a machine tool for the severest service.

*Glad to meet you a little more than half way—ask for our special offer*

**C. Mattison Machine Works, 883-5th St., Beloit, Wis.**

**Reliable Filer Wants Position**

Filer wants position in Saw Mill or Box Factory, could take care of Band, Band Resaws, Gang Saws and Circulars; strictly sober, references furnished.

**Address**

**Box E, Canadian Woodworker**

**Broken Castings**

can be Brazed and made as strong at joint as other parts fully guaranteed. Work sent by Express returned same day as received.

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**Cincinnati Veneer Company**

Sawed and Sliced Quartered Oak Veneers
Rotary Cut.
Poplar, Gum, Maple Cross-banding.
Oak and Walnut Faces and Backs.
Veneer Sawed Thin Lumber.
Sliced Poplar 1/8 to 5/16 in.

CINCINNATI, OHIO, U. S. A.

**Ohio Veneer Company**

Manufacturers of
**Foreign and Domestic Hardwood Lumber and Veneers**

Importers of
Mahogany and Foreign Woods

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We Have Large Quantities
**Plain Veneers, Ready to Ship**

OAK
BIRCH
POPLAR
GUM

STANDARD THICKNESSES
**Walter Clark Veneer Co.**
Grand Rapids - Mich.

**WOODWORKING FACTORY FOR SALE**

To be sold as a going concern in the growing city of Vancouver, B. C., woodworking factory with lease of building, or will sell separately, one 8 in. four sided sticker, one power mortiser, one tenoning machine, one single spindle shaper, one 20. in. jointer, one turning lathe, one elbow sander, one power drill, one 20 h. p. motor, one swing saw, one combined saw, one insulator pin lathe, quantity of shafting, pulleys, hangers, belting, etc.
Bettschen & Higgins Co. Ltd., 1261 Powell Street, Vancouver, B.C.

**WANTED**

Good, steady competent man, to take charge of small gang of men in sash and door department of planing mill, in one of the best towns in Central Ontario. Must do the laying out. State age and experience. Apply Box D, Canadian Woodworker, Toronto, Ontario.

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INDIVIDUAL
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Send your address and receive descriptive circular of Glue Heaters, Glue Cookers and Hot Boxes with prices.

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Grand Rapids, Mich.

The
**PULLEN Wire-Lacing GAUGE**

Ends all troubles with WIRE-LACED BELTS. Insures perfect spacing of lace holes, perfect joints, and smooth running, long wearing belts. Instantly adjusted to any size belt, on either side or edge, and the holes punched through the Gauge, quicker than without it. Pays for itself many times over in time and annoyance saved.

Mailed to any address on receipt of $1.00. Money back if you're not satisfied after trial.

**Leather Preserver Mfg. Co.,** 510 Munroe St. **Chicago, Ill.**

# From Coast to Coast

### Big Factory for Toronto

The Brunswick-Balke-Collender Co. of America, capitalized at $12,000,000, and one of the biggest concerns in the world engaged in the manufacture of billiard tables, bowling alleys, etc., will shortly build an $80,000 factory, employing 150 men, at the corner of Atlantic and Hanna avenues.

### Lumbering Operations

The Messrs. Aiken, Fredericton, N.B., have recently purchased the lumber on a block of three hundred acres of land on the Mactnaquac from Mr. John Esten and have commenced lumbering operations there. It is expected that they will cut between 800,000 and 1,000,000 feet of logs on the property.

### Will Build Own Cars

The St. John Railway Co., in which James Ross and Sir William Van Horne are leading shareholders, will in future build cars for its own system in St. John, N.B., instead of importing them.

### Blind River Mills Burn

The mills of the White Pine Lumber Company, of Blind River, Ont., owned and operated by the J. W. Wells Lumber Company, of Menominee, Mich., were burned recently. The loss was $125,000; insurance, $90,000.

### Sudden Camp Fire

Fire destroyed one of the sleeping camps at No. 1 logging camp of the Dryden Timber and Power Co., of Dryden, Ont., of which Geo. Birmingham is foreman. The disaster happened while the men were getting supper and their clothes and other effects were destroyed.

### Big Lumber Deal

A transfer involving the sale of thirty thousand acres of lumber lands was closed at Amherst, N.S., when an American syndicate composed of Percy Black, Edgar Fillmore and J. J. Soy, secured the lumber limits owned by Charles and Davidson Hill, near Trur, N.S. The Hill lumber areas have been looked upon as among the finest timber producing properties in the province. The syndicate expect to cut not less than six million feet this winter.

### Plow and Wagon Merger

It was reported at Brantford, Ont., that the Cockshutt Plow Co. had secured a controlling interest in the Brantford Carriage Works and Adams' Wagon Co. in that city. Harry Cockshutt, general manager of the Cockshutt Company, announced that he would make a statement regarding the deal on return from a trip to Montreal in connection with the same. Negotiations have been in progress for some time and the move is regarded as of big local industrial importance. The plants of both concerns acquired will, it is understood, be increased.

### New Planing Mill and Basket Factory for Merritton

A new industry is to spring up in Merritton, which will be connected with the manufacture of baskets and with wood planing. Mr. W. A. Gardner, of St. Catharines, is the leading spirit in this enterprising movement. About 25 hands (mostly men from the village) are engaged on the preliminary preparations for the erection of this factory.

### Workman Won Against Company

Rhine Fakkema, a workman employed by the Brooks, Scanlon, O'Brien Lumber Company, of Vancouver, B.C., won his appeal from the judgment of Judge Grant in favor of the company. Fakkema was injured in their employment and recovered damages amounting to $4500. The company had paid his hospital and medical bills to the amount of $686 and brought action in the county court to recover that amount. They were given judgment, but the appeal court held that the jury in the first place knew all about the $686 and probably reduced their verdict on that account.

### Fire in Toronto Planing Mill

A fire which started in the planing mill of the William A. Dunn Lumber Company, at 96 Davenport road, shortly after five o'clock yesterday afternoon, and which rapidly spread to the piles of lumber at the rear of the mill.

The fire started in the engine room, and was discovered at 5.15 by the engineer. He immediately turned in an alarm, but by the time the firemen had arrived the flames had spread to every part of the building and the cottage next door, and was eating its way to the lumber piles. A second alarm was sent in shortly before six o'clock, and soon every available street or lane was being used by the engines in pouring water on the flames. The task was a hard one, and, despite the tons of water, the lumber piles blazed away for hours.

The actual extent of the damage could not be accurately estimated, but Mr. W. A. Dunn, the proprietor of the mill and yards, places his loss at about $30,000, with some insurance. According to his estimate there were about 500,000 feet of lumber in the yards.

Lathers in Victoria, B.C., get $3 per thousand piece work, or $5.50 for an eight-hour day, in place of a rate of $3.50 per thousand, the men supplying their own nails.

### Company Promoter is Busy in Canada

Ottawa.—According to the annual report of the Secretary of State Department, out to-day, the company promoter is doing big business in Canada for 544 charters were issued during the year, as compared with 493 in the year before. Ten years ago the number of companies incorporated totalled only 53 in 12 months.

The total capitalization of the 544 companies, including new companies and increased capital in old ones, was $483,131,400.

### New Mill to be Built in Dutton, Ont.

James Dent, of Thamesville, Ont., who purchased the timber on the Wiley estate, has leased the western portion of the P. M. yards on which a mill will be

erected at once. Three cars of building material have already arrived.

### Purchase Timber—Will Erect Sawmills

A Windsor gentleman purchased yesterday from Stevens Brothers, of Port Bruce, Ont., the timber on their farm, for the consideration of $8,000. A sawmill will be erected there this winter.

### Painful Accident

R. J. Ogilvie, of Regina, Sask., had the fingers of his right hand so badly smashed while at work at the Cushing Brothers planing mill that it was necessary to amputate several of them at the first joint. Ogilvie was running a plank through a rip saw, when the plank kicked back, smashing his fingers.

### Sews on Severed Thumb

Samuel Slaken, eighteen years old, of Atlantic City, joked with the hospital surgeons while they sewed on his left thumb, which had been shattered by the accidental discharge of a gun. The member hung by shreds of skin. Slaken clipped off the thumb with a penknife, wrapped it up, put it in his pocket, stopped the flow of blood and then walked to the hospital. The surgeons believe the unusual operation will be suceessful.

### Three Men Hurt by Falling Beam

Three men employed on the construction of the new Arena Gardens on Mutual street, Toronto, were injured recently, the cause of the accident being the falling of a large iron beam that had just been hoisted into position.

Work had just been started and the large beam had been hoisted up forty feet. The three men were on it ready to make the necessary adjustments, when the chain at one end slipped and allowed the heavy piece of iron to fall. The men fell with it and it is marvellous that they were not crushed to death.

### Large New Industry for Toronto

Negotiations have been completed whereby a large American concern will build a factory in Toronto for the manufacture of fire extinguishers.

It is understood that the purchasing company will shortly commence building operations.

### Two Million Feet of Lumber for the Antipodes

The Canadian Puget Sound Lumber Company are filling an order for 2,000,000 feet of lumber for Australia. This is the largest single cargo ever shipped from a Victoria mill.

### A Big Sawmill for Formosa

A contract, involving approximately $500,000, for the entire mechanical equipment for a sawmill and lumbering plant to be erected on the Island of Formosa by the Japanese Government, has been awarded to Allis-Chalmers Company, Milwaukee. According to J. F. Harrison, manager of the sawmill machinery department, the contract is for motor driven apparatus throughout, and includes steam turbines.

The sawmill is to be on the Island of Formosa, ceded to Japan by China after the cessation of hostilities between those two countries. The timber on this island is for the greater part hard oak, the trees being from five to twenty feet in diameter. Special machinery, which no other country is making, is required to cut and transport these forest monsters. The order, it is understood, includes several of the heavy type logging engines.

### Overhauling Mill Plant.

The annual overhaul of the local plant of the Canadian Puget Sound Lumber Company is now under way and it is expected work will be resumed immediately. In addition to the overhauling of the plant the shutdown was necessary by reason of the installation of new conveyors necessitated by the erection of the new $25,000 burner which has been completed and is ready for use. The new structure will be of much larger capacity than the old, which is being dismantled and will also be of improved construction and, from the standpoint of fire protection, greatly superior to the one formerly in use.

Politeness may be only "hot air," but an air cushion makes a mighty good "shock absorber."
13 x 13 feet.

Fort William's building permits for eleven months of 1910 amounted to $1,976,990, while the first eleven months this year total $2,488,610. For the month of November this year the permits were 62 per cent. more than the previous November. This is only one of the many signs that tell of the future hopes of those who live in the city at the head of Lake Superior.

### Small Lumber Cut at Chatham, N. B.

The lumber cut on the Southwest Miramichi River this season will likely be the smallest in years. The Miramichi Lumber Company, which owns a large tract of land in that section, are this year confining their operations to Crown lands in the vicinity of Cain's River. Last year they operated extensively on the Main Southwest and Taxis Rivers.

### Hand Caught in Knives

While operating a chain morticer in the plant of the Brockville Lumber Company, Thos. Forge had his hand drawn into the rapidly moving knives by his mitten becoming caught and before it could be released the hand was terribly mangled. Three fingers and a portion of the fourth required amputation.

Consul Albert Halstead, Birmingham, England, reports the following item from a British technical paper concerning a new process of seasoning wood by electricity in France:

A large tank is filled with a solution containing ten per cent. of borax and five per cent. of resin, with just a trace of carbonate of soda. In the bottom of the tank is a lead plate which is electrically connected to the positive pole of the dynamo. The timber to be treated is stacked on this plate, and when the tank has been filled another plate is superimposed and connected to the negative pole of the dynamo. When the current is switched on it passes through the stack of wood between the two plates, and in its passage it is said to drive out the sap in the timber and deposit borax and resin in its place, completely filling up all pores and interstices. When the process is completed the timber is removed and dried, after which it is ready for use. It is claimed that the timber submitted to this treatment, no matter how green it may be, becomes completely seasoned.

## ABOUT COMPENSATION ACT

### Seven Industries Have 7,000,000 Employees Which Come Within Operation of the Act

A bluebook has been issued by the British Government giving the statistics of compensation and of proceedings under the workmen's compensation act of 1906 and the Employers' Liability Act of 1880, during the year 1910. It is stated in a preface to the report that the returns have been gathered from the seven great groups of industries—mines, quarries, railways, factories, harbors and docks, constructional works, and shipping. These industries in 1910 embraced 134,820 employers and more than 7,000,000 employees, who came within the provision of the workmen's compensation act of 1906. Compensation was paid in these industrials in 1910 in 3,150 cases of death and 378,340 cases of disablement. The average payment when death resulted was $744, and in cases of disablement $27.

#### Factory Workers Lowest

Taking the industries enumerated together, the annual charge for compensation averaged $1.86 for each person employed. It was lowest ($1.03 for each person) for persons working in factories, and highest for those employed in mines ($4.90 for each person), and in docks ($4.98 for the individual). In the coal-mining industry the annual charge for compensation worked out at about 1.8 cents per ton of coal raised. The compensation paid in the industries compared with $11,067,579 in the preceding year.

#### The Cost

When the cost of management and other expenses are included the total charge or expense cast upon the seven industries enumerated in the report aggregated, it is estimated, about $19,466,000. In these figures are included, in addition to accidents, cases of the various industrial diseases, now twenty-four in number, including under the workmen's compensation act. Compensation was paid in 1910 in thirty-six cases of death from disease and in 4,438 cases of industrial diseases, 852 occurred in the mining industry and were due principally to nystagmus, beat hand, beat knee, and beat elbow. Of the remaining cases 519 were attributable to lead poisoning.

#### Number of Claims

The aggregate number of original claims for compensation under the Workmen's Compensation Act, which were finally settled within the cognizance of the courts in England and Wales in 1910, numbered 3,862; in Scotland, 486, and in Ireland 658. The decision in 78.6 per cent. of the cases was in favor of the workmen. So generally are the claims made now under the Workmen's Compensation Act of 1906 that in 1910 there were only 217 cases which the courts were called to pass upon under the Employers' Liability Act of 1880. Each year since the Workmen's Compensation Act became operative, there has been a lessened inclination to resort to the Employers' Liability Act.

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### Paper Birch Supply

The United States Department of Agriculture is authority for the statement that the paper birch, often called also white birch, or canoe birch, is one of the few timber trees in this country which seem to be holding their own against axe and fire. The average citizen, however, probably takes no particular interest in the paper birch. Yet it is doubtful if any other kind of wood on the face of the earth is found in so many households; for paper birch furnishes most of the spools in America.

Maine is the chief center of spool manufacture. Its factories turn out 800,000,000 spools yearly, chiefly birch. Few woods as hard as this can be worked with as little dulling of the tools; its principal recommendation lies in that fact. It is handsome in color, and, after the wood becomes seasoned, it shrinks and warps very little. That is an important consideration, because the delicate machinery that winds the thread would fail to work if the spool changed its shape to a perceptible degree.

The birch wood for spools must be selected and handled with care. The tree's red disk heart wood is objectionable because it will not turn smooth in the lathe, and the color is not desired. Few industries waste more wood, in proportion to the quantity used, than spool making. Heartwood, knots, and all other defects, frequently amounting to more than one-half of the tree, are rejected. From one-half to three-fourths of the remainder may go to the refuse heap in sawing the bars and turning the spools. Despite this waste the paper birch does not appear to be threatened with extinction. It is a fire tree—that is, it spreads rapidly over spaces left vacant by forest fires. The most extensive paper birch forests in Maine and New Hampshire occupy tracts which were laid bare by the great forest fires which swept the region from 1825 to 1837.

The tree is short lived. At an age when the white cedar, for example, is just beginning to lay on useful wood, the paper birch has passed its prime and is ready for decay. It is placed at still further disadvantage by being unable to compete with other trees for light and soil. It prospers when growing alone, but it gives up the fight after stronger trees begin to crowd it. Nevertheless, it is believed that more paper birch is growing on this continent to-day than two hundred years ago.

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For the convenience of carpenters there has been invented a machine which, held in one hand, feeds nails to the position in which they are to be driven by a hammer held in the other hand.

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### Be Able to Say Yes and No

A certain factory manager who has made a success of his business, attributes his success largely to his ability to say "yes" and "no" and to say them at the proper time. He is a believer, as he himself, explains, in good old Saxon words. If he does not want any new factory equipment or stock, he says so without beating around the bush. On the other hand, if he thinks a thing would help him to secure greater economy in the shop or greater production without a large additional expense, he does not hesitate to accept it.

Undoubtedly there are managers, superintendents and foremen who lack the power to make up their own minds without undue delay. They temporize, lacking the courage to refuse something, which their common sense condemns, or to accept a thing which looks good, but involves new ideas and added risks. The ability to make quick decisions and make them wisely, is one of the greatest gifts assisting in making a successful manager, particularly if he has the added quality of stick-to-it-iveness.

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**AUTOMATIC DOVETAIL GLUE JOINTER**
Canadian Linderman Machine Co., Ltd., Woodstock, Ont.

**BABBITT METALS.**
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Canada Metal Co., Ltd., Toronto.

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Ober Mfg. Co., Chagrin Falls, O.
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Canada Machinery Corporation, Ltd., Galt, Ont.
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Canada Machinery Corporation, Ltd., Galt, Ont.
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Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

**BAND SAW MILLS.**
Berlin Machine Works, Ltd., Hamilton. Ont.
Canada Machinery Agency, Monteral.
Mussens, Ltd., Montreal.
Fay & Egan Co., Cincinnati, O.

**BAND SAW STRETCHERS.**
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The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

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Mussens, Ltd., Montreal.
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**BELTS (Endless).**
Canada Machinery Agency, Montreal.
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Sadler & Haworth, Montreal.
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Sadler & Haworth, Montreal.

**BELT FASTENERS.**
Sadler & Haworth, Montreal.

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Canada Machinery Corporation, Ltd., Galt, Ont.
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Canada Machinery Agency, Montreal.
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Canada Machinery Corporation, Ltd., Galt, Ont.
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J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler Ont.
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Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.

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Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
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The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

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J. A. Fay & Egan Co., Cincinnati, O.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

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J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
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C. Mattison Machine Works, Beloit, Wis.
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Samuel J. Shimer & Sons, Mitton, Pa.
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Sheldons, Ltd., Galt, Ont.

**DYNAMOS.**
Canada Machinery Agency, Montreal.

**EDGERS (Gang).**
Berlin Machinery Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
Simonds Canada Saw Co., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Fisher, Sander Co., Berlin, Ont.
E. & B. Holmes Machinery Co., Buffalo N.Y.
H. W. Petrie. Ltd., Toronto.

**EDGERS (Single Saw).**
Berlin Machine Works, Ltd., Hamilton Ont.
Canada Machinery Agency, Montreal.
Simonds Canada Saw Co., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.

**END MATCHING MACHINE.**
Berlin Machine Works, Ltd., Hamilton.
Canada Machinery Corporation, Ltd., Galt, Ont.
Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.

Mussens, Ltd., Montreal.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

ENGINES (Steam).
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

EXHAUST FANS.
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
Sheldons, Ltd., Galt, Ont.

FLOORING MACHINES.
Berlin Machine Works, Ltd., Hamilton.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler.
Mussens, Ltd., Montreal.
Samuel J. Shimer & Sons, Milton, Pa.
Canada Machinery Corporation, Ltd., Galt, Ont.
Baxter D. Whitney & Son, Winchendon, Mass.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

FLINT.
Wausau Quartz Co., Wausau.

FLUTING HEADS.
J. A. Fay & Egan Co. ,Cincinatti, O.

GAINING MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinatti, O.
C. Mattison Machine Works, Beliot, Wis.
Mussens, Ltd., Montreal.
Canada Machinery Corporation, Ltd., Galt, Ont.
H. W. Petrie Co., Ltd., Toronto.

GAS ENGINES.
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
H. W. Petrie, Ltd., Toronto.

GAUGES (Saw).
Shurly Dietrich Co., Ltd., Galt, Ont.
Simonds Canada Saw Co., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

GEAR HOBBING MACHINE.
Reynolds Machine Co., Moline, Ill.

GLUE CLAMPS.
Black Bros. Machinery Co., Mendota, Ill.
H. W. Petrie, Ltd., Toronto.

GLUE HEATERS.
J. A. Fay & Egan Co., Cincinnati, O.

GLUE JOINTERS
Canada Machinery Corporation, Ltd., Galt, Ont.
Canadian Linderman Co., Ltd.

GLUE SPREADERS.
J. A. Fay & Egan Co., Cincinnati, O.

GRINDERS (Cutter).
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Falls Machine Co., Sheboygan Falls, Wis.

GRINDERS (Knife, etc.).
E. C. Atkins & Co., Hamilton, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
T. A. J. Burton Saw Co., Ltd., Vancouver, B.C.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

GRINDERS (Tool).
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Valley City Machine Works, Grand Rapids, Mich.

GROOVING HEADS.
E. C. Atkins & Co., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
C. Mattison Machine Works, Beloit, Wis.
Samuel J. Shimer & Sons, Milton, Pa.
Canada Machinery Corporation, Ltd., Galt, Ont.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

HAND PROTECTORS.
J. A. Fay & Egan Co., Cincinnati, O.
Jones Safety Device Co., Hamilton, Ont.

HAND SCREWS.
Black Bros. Machinery Co., Mendota, Ill.
J. A. Fay & Egan Co., Cincinnati, O.

HEATING APPARATUS.
Sheldons, Ltd., Galt, Ont.

HANDLE AND SPOKE MACHINERY.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
J. M. Nash, Milwaukee, Wis.
Ober Mfg. Co., Cragrin Falls, O.
Baxter D. Whitney & Son, Winchendon, Mass.

HUB MACHINERY.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.

INJECTORS.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

JOINTERS.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Canadian Linderman Co., Ltd.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

KNIVES (Planers and Others).
Shurly Dietrich Co., Ltd., Galt, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
E. C. Atkins & Co., Hamilton.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.
Samuel J. Shimer & Sons, Milton, Pa.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

LACE LEATHER.
Sadler & Haworth, Montreal.

LAST MACHINERY.
Canada Machinery Agency, Montreal.

LATHES (Pattern Makers').
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Valley City Machine Works, Grand Rapids Mich.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

LATHES (Turning).
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Haspeler, Ont.
C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Plessisville Foundry, Plessisville, Que.
Valley City Machine Works, Grand Rapids, Mich.
Baxter D. Whitney & Son, Winchendon, Mass.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

LOOSE PULLEYS.
J. A. Fay & Egan Co., Cincinatti, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

LUBRICANTS AND GREASES.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

LUMBER.
Elgie & Jarvis, Toronto.

MITRE MACHINES.
Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

MITRE SAWS.
Shurly Dietrich Co., Ltd., Galt, Ont.
E. C. Atkins & Co., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Canada Machinery Corporation, Ltd., Galt, Ont.
Simonds Canada Saw Co., Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo N.Y.
H. W. Petrie, Ltd., Toronto.

MITRE CLAMPS.
Black Bros. Machinery Co., Mendota, Ill.
H. W. Petrie, Ltd., Toronto.

MORTISING MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinatti, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Jones & Glass Co., Montreal.
Mussens, Ltd., Montreal.
Plessisville Foundry Co., Plessisville, Que.
Valley City Machine Works, Grand Rapids, Mich.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

MOTORS.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.

MULTIPLE BOXING MACHINES.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
J. M. Nash, Milwaukee, Wis.

PATTERN SHOP MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Baxter D. Whitney & Son, Winchendon, Mass.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

PICTURE FRAME MACHINERY.
Black Bros. Machinery Co., Mendota, Ill.
Canada Machinery Corporation, Ltd., Galt, Ont.
Hespeler Machinery Co., Ltd., Hespeler, Ont.

PLANES.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.

PLANERS.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Baxter D. Whitney & Son, Winchendon, Mass.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

PLANING MILL MACHINERY.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Samuel J. Shimer & Sons, Milton, Pa.
Baxter D. Whitney & Son, Winchendon, Mass.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
Black Bros. Machinery Co., Mendota, Ill.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie Co., Ltd., Toronto.

PULLEYS.
Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinatti, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

QUARTZ.
Wausau Quartz Co., Wausau.

RESAWS.
Shurly Dietrich Co,, Ltd., Galt, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency Montreal.
Simonds Canada Saw Co., Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinatti, O.

Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

RIM AND FELLOE MACHINERY.
J. A. Fay & Egan Co., Cincinnati, O.
Canada Machinery Corporation, Ltd., Galt, Ont.

RIP SAWING MACHINES.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Canada Machinery Corporation, Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

ROLLER BEARINGS.
Mussens, Ltd., Montreal.

SAFETY GUARDS (For Band Saw Machines, Jointers, Rip Sawing Machines, Shapers, Swing Saws, etc.).
The Jones Safety Device Co., Ltd., Hamilton, Ont.
Fair Manufacturing Company.

SANDERS.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Canada Machinery Agency. Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
J. M. Nash, Milwaukee, Wis.
Ober Mfg. Co., Chagrin Falls, O.
Fisher Sander Co., Berlin, Ont.
Black Bros. Machinery Co., Mendota, Ill.
H. W. Petrie, Ltd., Toronto.

SAND.
Wausau Quartz Co., Wausau.

SANDPAPER.
Black Bros. Machinery Co., Mendota, Ill.

SANDERS (Moulding, Belt and Panel).
Black Bros. Machinery Co., Mendota, Ill.
H. W. Petrie, Ltd., Toronto.

SASH, DOOR AND BLIND MACHINERY.
Berlin Machine Works, Ltd., Hamilton.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Samuel J. Shimer & Sons, Milton, Pa.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
Black Bros. Machinery Co., Mendota, Ill.
H. W. Petrie, Ltd., Toronto.

SAWS (Hand).
Shurly Dietrich Co., Ltd., Galt, Ont.
E. C. Atkins & Co., Hamilton, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
Simonds Canada Saw Co., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.

SAW MILL MACHINERY.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.

Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

SAW SWAGES, AUTOMATIC FILERS.
E. C. Atkins & Co., Hamilton, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

SAW TABLES.
Canada Machinery Corporation, Ltd., Galt, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

SCRAPING MACHINES.
Baxter D. Whitney & Son, Winchendon, Mass.

SCROLL SAWS.
Canada Machinery Corporation, Ltd., Galt, Ont.
Shurly Dietrich Co., Ltd., Galt, Ont.
E. C. Atkins & Co., Hamilton, Ont.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.

SECOND HAND MACHINERY.
Canada Machinery Agency, Montreal.
Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

SHAPERS.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Plessisville Foundry, Plessisville, Que.
Samuel J. Shimer & Sons, Milton, Pa.
Baxter D. Whitney & Son, Winchendon, Mass.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

SHAVING COLLECTORS.
Canada Machinery Agency, Montreal.

SINGLE SPINDLE BOXING MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.

SLAVE SAWING MACHINE.
Baxter D. Whitney & Son, Winchendon, Mass.

SURFACERS.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Baxter D. Whitney & Son, Winchendon, Mass.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

SWING SAWS.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Plessisville Foundry, Plessisville, Que.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

TABLE LEG LATHES.
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Baxter D. Whitney & Son, Winchedon, Mass.

TENONING MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

TOOLS (Hand).
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Samuel J. Shimer & Sons, Milton, Pa.

TRIMMERS.
Berlin Machine Works, Ltd., Hamilton.
Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.

TRUCKS.
Canada Machinery Corporation, Ltd., Galt, Ont.
Sheldons, Ltd., Galt, Ont.
Hespeler Machinery Co., Ltd., Hespeler, Ont.

TURNING MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
C. Mattison Machine Works, Beloit, Wis.
Canada Machinery Corporation, Ltd., Galt, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Plessisville Foundry, Plessisville, Que.
Baxter D. Whitney & Son, Winchendon, Mass.
H. W. Petrie, Ltd., Toronto.

UNDER-CUT SELF-FEEDING FACE PLANER.
J. A. Fay & Egan Co., Cincinnoti, O.
Canada Machinery Corporation, Ltd., Galt, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Falls Machine Co., Sheboygan Falls, Wis.

GUMMERS, ETC.
E. C. Atkins & Co., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.

UNIVERSAL WOODWORKER PLANER.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

VENTILATING APPARATUS.
Sheldons, Ltd., Galt, Ont.

VENEER DIERS.
Sheldons, Ltd., Galt, Ont.

VENEER PRESSES (Hand and Power).
Canada Machinery Agency, Montreal.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Hydraulic Press Mfg. Co., Mount Gilead, Ohio.
Mussens, Ltd., Montreal.
Black Bros. Machinery Co., Mendota, Ill.

VISES.
Mussens, Ltd., Montreal.

VISES (Band Saws).
Shurly Dietrich Co., Ltd., Galt, Ont.
Simonds Canada Saw Co., Montreal.
E. C. Atkins Co., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
H. W. Petrie, Ltd., Toronto.

VISES (Pattern Makers').
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.

VISES (Circular Saws).
E. C. Atkins Co., Hamilton.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
H. W. Petrie, Ltd., Toronto.

WAGON AND CARRIAGE MACHINERY.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Plessisville Foundry. Plessisville, Que.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Ober Mfg. Co., Chagrin Falls, O.
Baxter D. Whitney & Son, Winchendon. Mass.

WOOD PULLEYS.
Canada Machinery Agency. Montreal.
Plessisville Foundry, Plessisville, Que.

WORK BENCHES.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.

# "Amphibia"

**Waterproof**

# Leather Belting

is made to do hard work in a wet place better than any other Belt. Let us prove it to you by sending a Belt on trial.

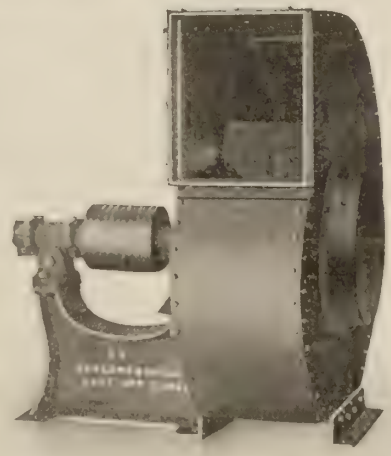
We always carry a full stock of all kinds of Leather Belting.

## Sadler & Haworth

**Montreal - Toronto**

The New Slow Speed

# Sheldon Exhaust Fan



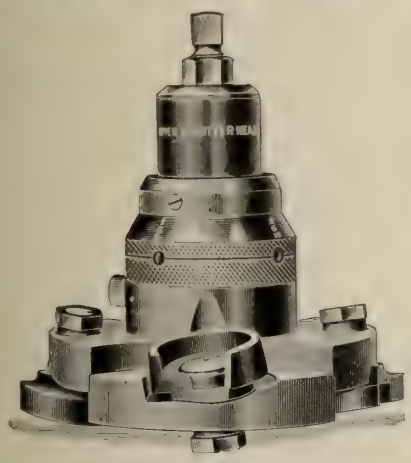
**The Fan that is revolutionizing the Shaving Exhaust Business**

It will handle wet or dry, long or short shavings and sawdust, and will do this work with a guaranteed reduction in speed of from 25% to 40% less and with a power consumption of 20% to 35% less, than any other exhaust fan. The Casing is very similar to that formerly used, but the wheel is of an entirely different design.

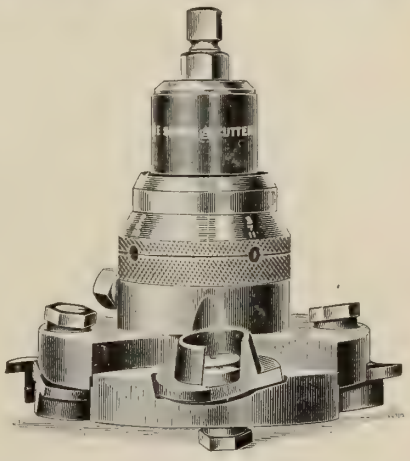
**Let us tell you more about it**

## SHELDONS LIMITED - Galt, Can.

# REDUCE RUNNING EXPENSES



**Tools that maintain a uniform shape of pattern, and for an indefinite period, save time--save labor--save running expenses.**



THE SHIMER CUTTER HEADS offer you these several advantages. They furnish a system for making Flooring, Ceiling, Siding, Jointing, Ship Lap, etc., that removes the difficulties incident to the use of every other make of Cutter Head. These tools save actual labor —save machine time—put out a product faultless in form and finish.

The Shimer Cutter Heads are as simple as a saw to keep in order. The set of the Bits for point and edge clearance is a permanent "make-ready" which clears away all friction and protects the cutters from burning and excessive wear.

The Cutters are divided into upper and lower series, parting the chip in the middle of the cut, permitting of a most complete expansion or contraction of the tongue and groove proportions by the turning of a single lock nut. This expansion feature regulates the fitting as close as one-third of a sixty-fourth of an inch. If the Bits are a little dull and you wish to finish the day without sharpening, you can turn the spanner ring one notch to enlarge the groove (or reduce the tongue) when the fitting will again be in perfect shape.

If you wish to reduce running expenses it will pay you to study the advantages offered by the Shimer Cutter Heads. There is nothing like them for Strength—for Reliability—for Fast Cutting—for quick Adjustment —for all-round work and lasting qualities.

**SAMUEL J. SHIMER & SONS, GALT, ONT., CAN. Branch at Milton, Pa.**

# AMERICAN NUMBER 111

THE New *American* No. 111 Band Resaw is the latest machine of its type for furniture factories.

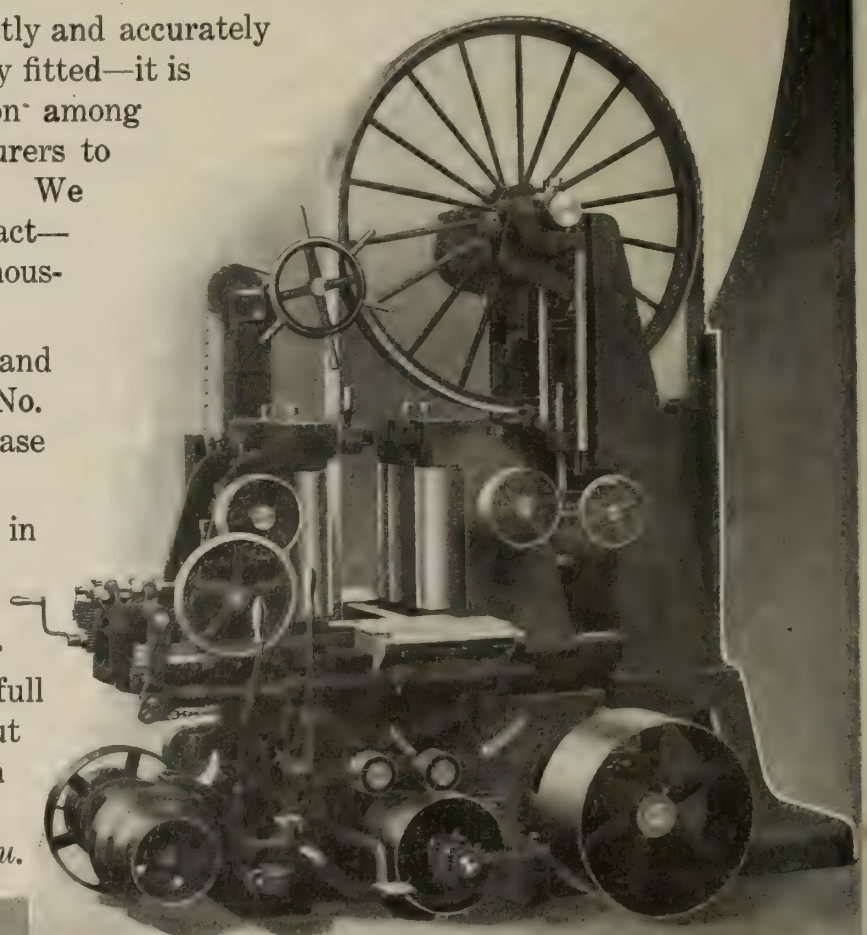
All the component parts of it are made in our own shops, including the molding of the castings, which form the foundation—and that's important.

It means in the first place that the machine has the weight—no skimping in the cast iron that forms the base and columns of the machine. The No. 111 is in reality the heaviest 54-inch Band Resaw on the market—*that's our guarantee.*

The No. 111 is correctly and accurately machined and carefully fitted—it is the common expression among wood working manufacturers to say—like a machine tool. We want to emphasize the fact—our mechanics work to ½ thousandths of an inch.

*Result*—with its solidity and accurate workmanship the No. 111 runs like a watch—with ease and without vibration.

If you need a Band Resaw in your business, let us tell you fully what the No. 111 is and will do. Your inquiry will bring you full details without any obligation whatever. *Let us hear from you.*



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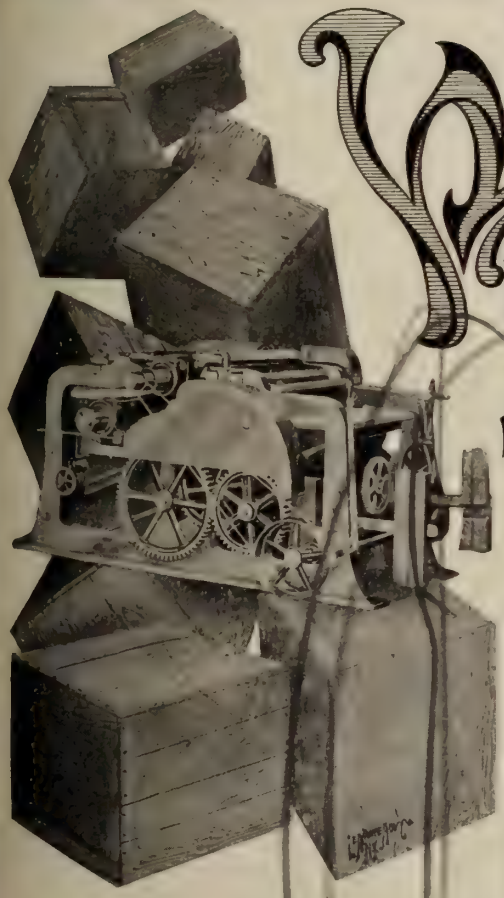
CANADIAN WOODWORKER

Toronto, January, 1912

# Whitney Planers

IT is a splendid thing to be so superior that others follow in imitation, the better you are, the better you ought to make them.

There is a simile between this and Whitney Planers and other makes, they have followed the Whitney lead—which is good—but they neither have the Whitney patterns, jigs, etc., or Whitney workmen—which is bad.

Now; asking you freely and frankly—would you prefer to buy a planer, either single or double surfacer, from an imitator or from the concern that that created and constantly are improving?

We know your answer.

Then why don't you write us for details—prices illustrated information and all else wanted.

## Baxter D. Whitney & Son

**WINCHENDON, MASS.**

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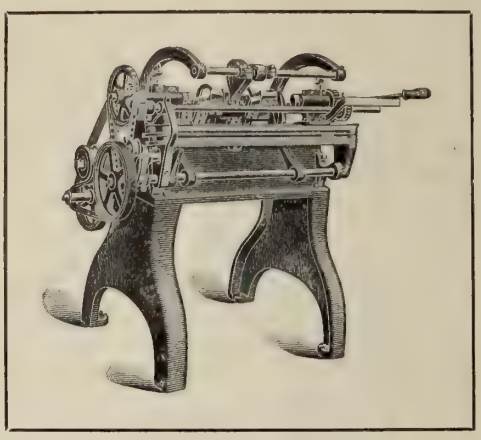

**The 22 No. 2″ Lathe**

for turning Hammer, Hatchet, Auger, File, Knife and Chisel Handles, Porch Spindles, Tent Stakes, Mallets, etc., etc. The best machine on the market for working up waste timber. Will pay for itself in a very short time. A good boy can operate it after it is set up.

We also manufacture other Lathes for making Spokes, Handles, and Variety Work, Sanders, Shapers, Boring and Chucking Machines, etc., etc.

Complete Catalogue and Price List Free.

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**31 Bell St., CHAGRIN FALLS, Ohio., U. S. A.**

**Clamp Fixtures, Per Set, 50 Cents**

Gentlemen :—We are pleased to state that the 25 dozen Patent Malleable Clamp Fixtures which we bought of you a little over a year ago are giving excellent service, We are well satisfied with them and shall be pleased to remember you whenever we want anything additional in this line.

Yours truly, CURTIS SASH & DOOR CO.,
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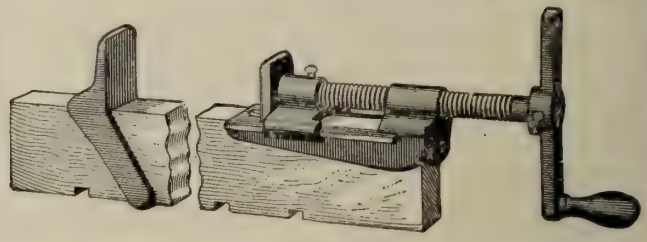

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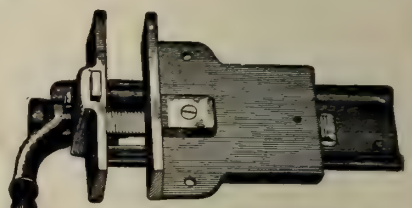
**Over 26,000 of our Steel Rack Guaranteed Vices**

now in use. We solicit the privilege of submitting samples of these specialties on terms that will be attractive to rated firms. Write for list and prices.



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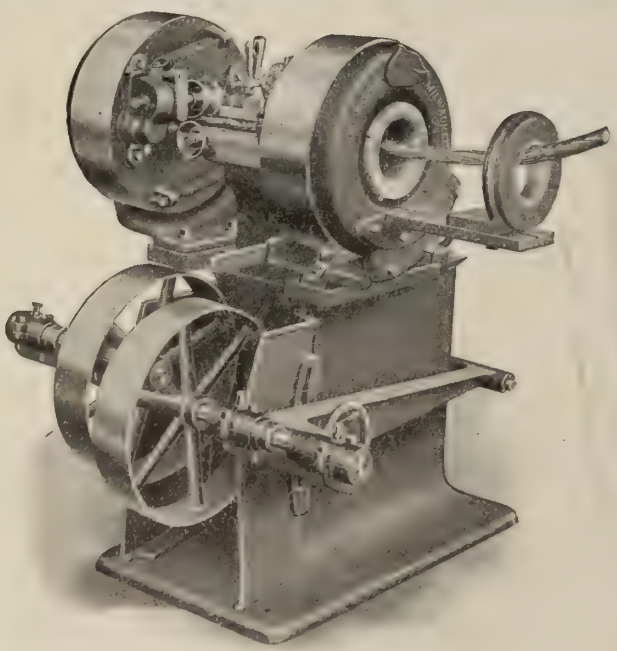
**Your Bent Chair Legs and Posts, Bent Handles, Etc.**

can be sanded just as nicely as straight work on the

**No. 6 Combination Nash Sander**



And the saving in cost is something to make you smile with satisfaction.

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**Carborundum Knife Grinding Wheels have cut their way into favor in many of the most prominent wood working establishments in the country**

They not only do twice the work of any other grinding wheels—but they do it better and cleaner. They stand up well—do not burn the work—do not draw the temper even from the finest steel. Require almost no attention and last much longer than other abrasive wheels.

**THE CARBORUNDUM COMPANY**

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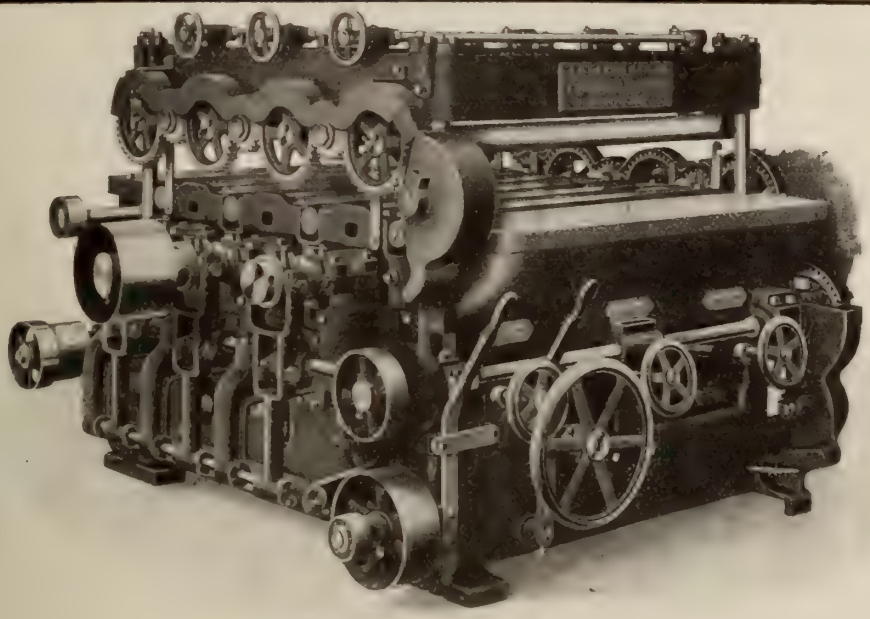
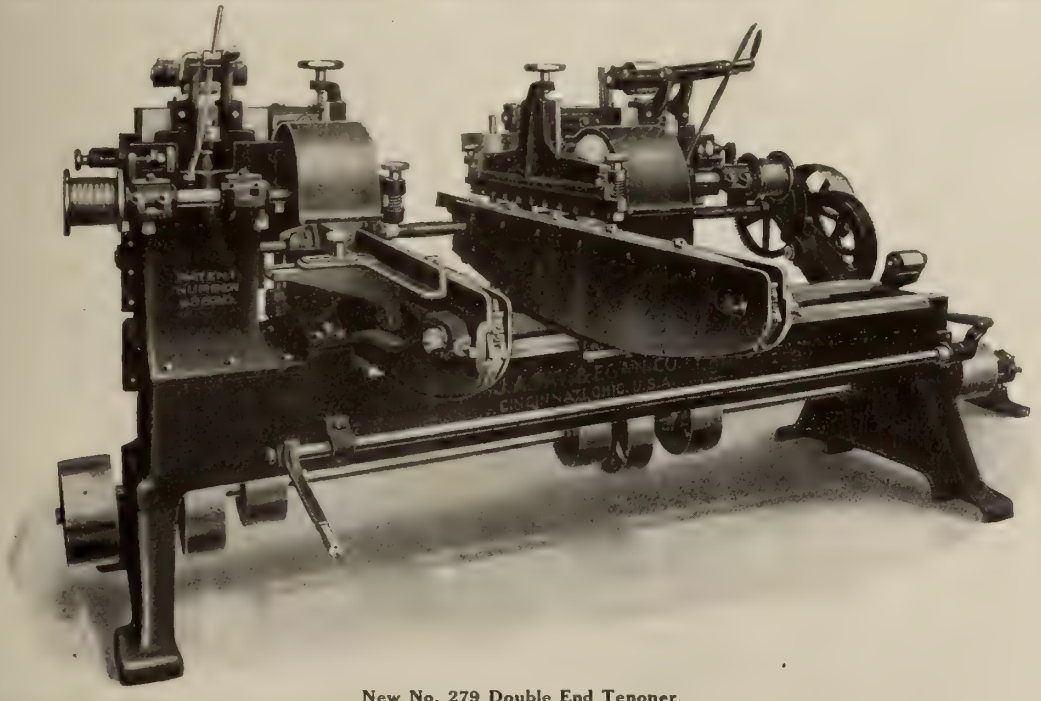


No. 225 Triple Drum Sander

No. 156 Single Cylinder Cabinet Surfacer Patented 10-10-05—10-23-06—12-4-06—3-28-11



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Your margin of profit can be materially increased by the installation of modern High Efficiency Woodworking Machines of the types shown on this page.

In no branch of the Woodworking Machinery line has there been so great an improvement as in the Furniture Factory Tools.

No progressive manufacturer should fail to look through our latest furniture factory catalog and compare the new models with his old equipment. If you have not received a copy, ask us for it—it's free.

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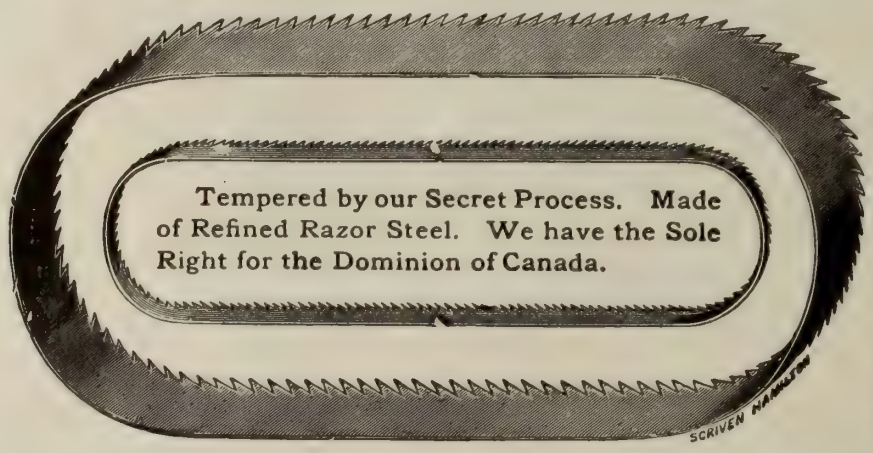
LARGEST SAW MANUFACTURERS UNDER THE BRITISH FLAG

We manufacture Circular Saws Gang Saws Mill Saws Band Saws Cross Cut Saws Buck Saws Saw Setts etc.




We manufacture high-grade **Band Saws** of all Widths and Lengths

These Saws are made of Refined Razor Steel, and Tempered by our Secret Process; for Fine Finish and Temper are not excelled.

**"Maple Leaf" Saws** are the best-tempered saws made

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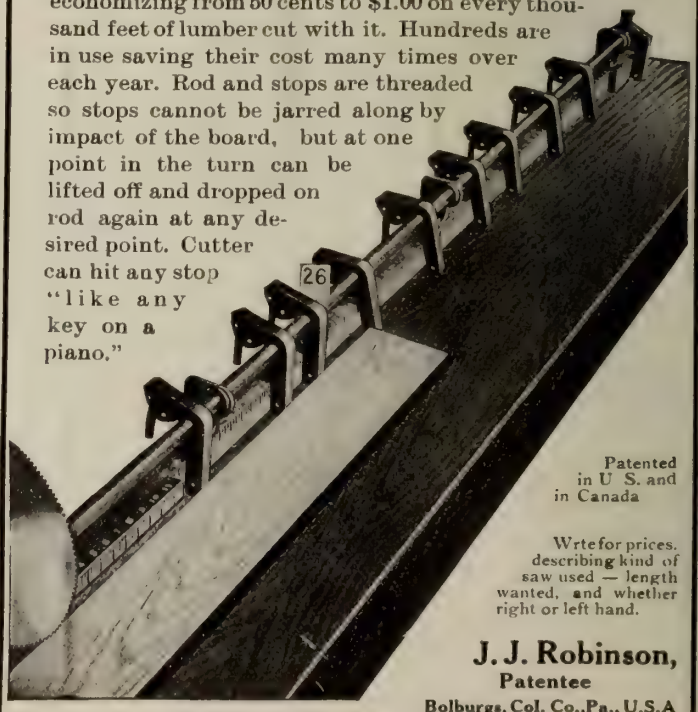


Patented in U. S. and in Canada

Write for prices, describing kind of saw used — length wanted, and whether right or left hand.

**J. J. Robinson,**
Patentee
Bolburgs, Col. Co., Pa., U.S.A

# R. H. Smith Co., Limited

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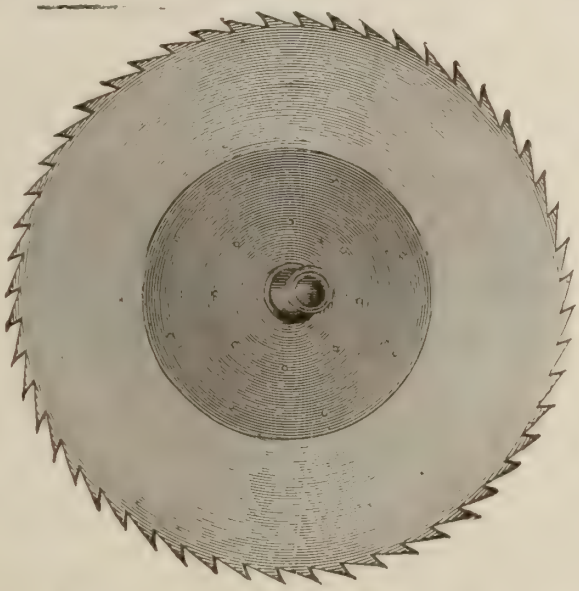
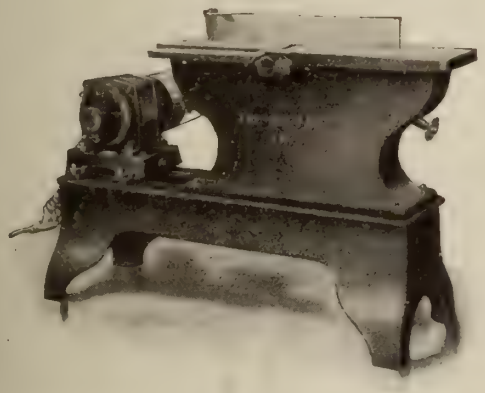
MANUFACTURERS OF THE CELEBRATED "GOLD COIN" SAWS

**We make Inserted Tooth Saws, Shingle Saws, Cross Cut Saws, Hand Saws, etc., etc.**



**We make every kind of Saw required in Saw Mills, Planing Mills, Furniture Factories, Piano Factories, Carriage Factories, etc., etc.**

We have been manufacturing for the Canadian trade since 1855, and have maintained the same high standard of excellence. Let us know your saw requirements.



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We equip them to your order with Square or Safety Cylinder, with or without Bench, and with or without Motor.

There is a **reason** why we ship so many of "The Porter" machines into Canada. They are **Quality** machines at **reasonable** prices.

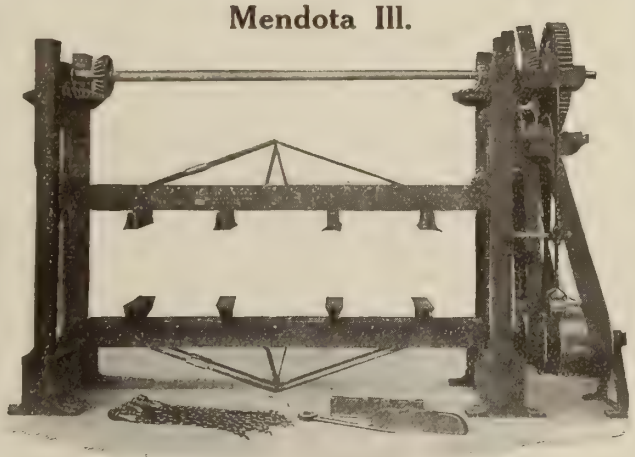
Our catalog J may be of good service to you. Send for it.

## C. O. Porter Machinery Co.,

**Grand Rapids, - Mich.**

## Black Bros. Machinery Co.

**Mendota Ill.**



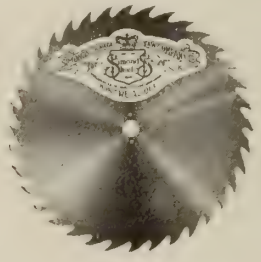
## A Veneer Press with a Reputation

We would like to give you particulars of this machine, because we can show you increased production and a better finished job. :: :: :: : ::

**Better let us send you a folder about our Veneer Presses**

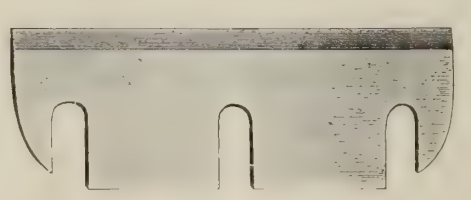
# Simonds Saws
and
# Simonds Knives

Any firm can buy steel or iron. Any firm can try in their own way to make their steel over into a manufactured product such as Saws or Wood-



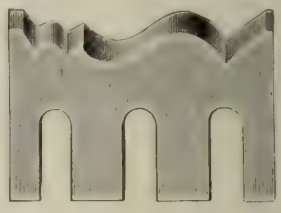
working Machine Knives. They may put these goods on the open market, but what a difference from goods made in the Simonds way.

When you buy Simonds Saws or Knives you not only buy material but you also buy Experience. Our factories are manned by competent men, these

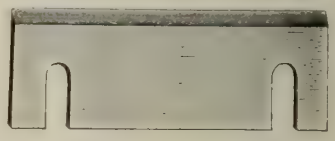


men are supervised by Experts. Men who make use of the knowledge gained by years and years of Simonds Saw making in Canada and the United States. We make our own Steel in our own Steel Mill.

There is no limit to the size of Circular saws that we make excepting the limit placed by



use. Band Saws we can furnish in all regular widths and lengths. Knives of all descriptions, also Files and Hack Saws. Simonds Saws satisfy.



In your planing mill or factory many goods such as we make must be in constant use. Use the Simonds and you will be sure of best results. Ask us any questions about the proper care of anything in our line. Get in touch with us the manufacturer and it will surely be to your advantage in the long run. It will pay you.

**Factory in Montreal**

## Simonds Canada Saw Co. Limited

**Montreal, Que.**

**Vancouver, B.C.** **St. John, N.B.**

*A Good Machine Like a Good Investment—Wants Picking Up Now.*

## Our Improved
# Automatic Rounding Machine
### Is a Good Investment

**Because** it is the most perfect High-Speed Machine on the market.

No slippage or breakage of stock.

It is made in the three sizes taking from ¼ in. to 3 in.

Rollers are self adjusting.

Rate of feed varies automatically according to diameter being turned.

Suitable for Hard or Soft Woods.

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**The Unsolicited Testimonial**

To Canada Metal Co., Toronto. Hawkesbury, July 21, 1911

We are very much pleased with your Heavy Pressure Babbitt. It has given us complete satisfaction and we consider it as good as we were paying another firm 60 cents for.

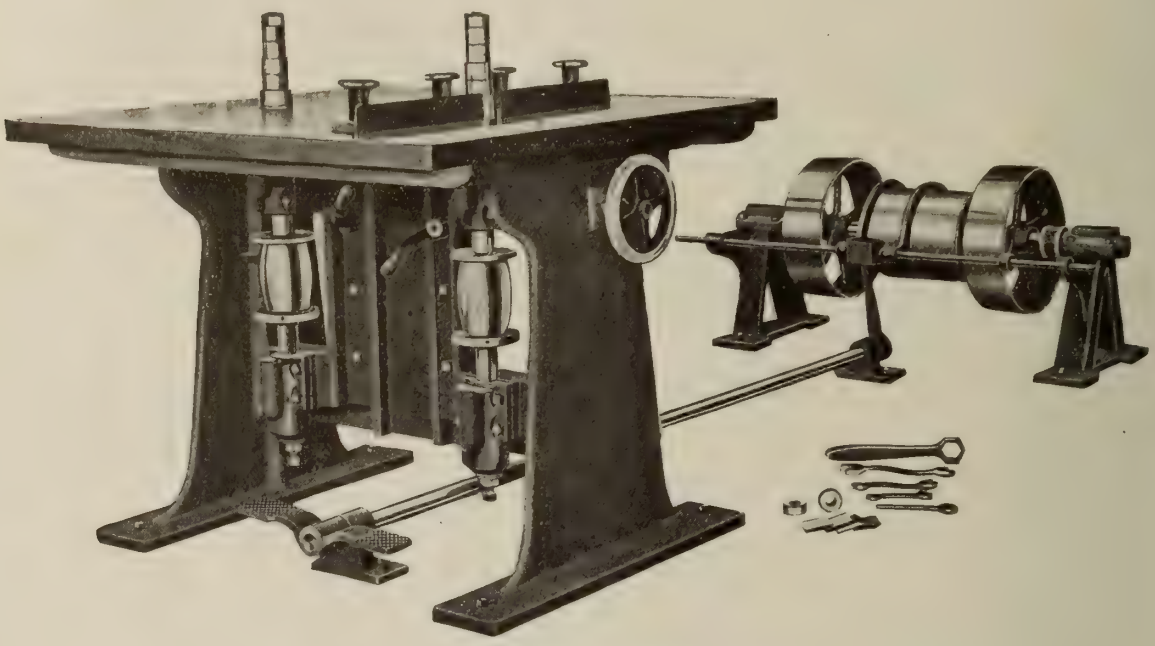
Hawkesbury Lumber Co'y. Limited, per Wm. G. Hall

Write for Prices

**THE CANADA METAL CO., Limited,**
**FRASER AVENUE - TORONTO**

# Canada Machinery Corporation

GALT Limited



**No. 804 Double Spindle Shaper**

Above illustrates our light double spindle shaper, with frame cast in one piece, spindles of special light carbon steel, and extra long bearings. Table supplied either of iron, or glued up strips of ash and maple.

We also manufacture the most complete and up-to-date line in Canada of Matchers, Surfacers, Moulders, Sanders, Tenoners and Morticers, Door and Blind Machinery, Rip and Cross Cut Saws, Band Saws and Band Resaws, Shapers, Jointers, and Boring Machines.

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# Canada Machinery Corporation

GALT, ONTARIO Limited

# Canadian Woodworker

**Canada's Only Woodworking Paper**

Published in the interests of Planing Mills, Saw Mills, Furniture and Piano Factories, Implement and Carriage Works, Boxmakers and Coopers.

The Circulation extends from the Atlantic to the Pacific and covers thoroughly all classes of Woodworkers in this immense territory.

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**Vol. 11** **January, 1912** **No. 1**


## Make a Personal Stocktaking

**Look Over Your Equipment and Your Last Year's Profits and Decide that You, Yourself, Can Better Both**

Most manufacturing concerns take stock once each year. They do so in order to find how they stand financially and which lines paid best. It is a time too, when leaks are stopped. In fact it is a general house-cleaning time.

The old and worn-out machines are replaced by new and up-to-date ones, shafting is lined up, boilers get a thorough overhauling and all is made ready for a new start.

If business men and manufacturers find it to their interest to take stock, would it not be a good idea if we as individuals also did a little stocktaking on our own personal account in order to find out how we stand not only financially, but with the object of discovering some way in which we can improve our producing and earning power?

At the commencement of each year the average man asks himself that ever important question, will my wages be increased this year. And when the end of the year comes round again and the figures on his pay envelope show the same old pay, he becomes dissatisfied. This is the time to take stock and get ready for a fresh start.

Don't spare yourself. Go at it in just the same painstaking manner the business man and manufacturer goes about it. Find out the reason why your expectation is not realized. Circumstances, no doubt, had more or less to do with the matter, no one will dispute that. But could you have done better had you made an effort to improve your qualifications and personal equipment?

If a position higher up had been offered to you could you have taken it? If not, what would have prevented you doing so? By taking stock this reason would be disclosed.

## Yellow Pine Letter from Correspondent

Never has yellow pine been discussed more freely in Canada than in the last year, and the planing mill men are gradually becoming accustomed to the handling and working of this lumber. This is proven by the large demand that there has been for this material during the past year. And we want to discuss a few points that may be foreign to our lumbermen and planing mill men.

When ordering yellow pine finish for trim, door work, etc., buyers should always specify SHORT LEAF, for the reason that while long leaf is the best for joists and timbers, short leaf is of a much softer nature, therefore naturally is much easier to work. It is very hard for one unaccustomed to handling large quantities of yellow pine to distinguish the difference between short and long leaf, while the long leaf is a much closer grained lumber, still if there is four or five thousand feet mixed in a car with short leaf 75 per cent. of inspectors would pass it over. A good way to detect whether a car contains any large quantity of long leaf is to refer to bill of lading and if stock weighs more than 3400 lbs. per thousand, it is very nearly always safe to figure that you are getting a lot of hard material.

There is quite a lot of discussion as to whether steam or smoke dried stock gives the better satisfaction. For door work if the mill men can get hold of some reliable concern who will pay particular attention to drying, we are of the opinion that he will get much better satisfaction from smoke dried stock.

If you will notice steam dried stock closely especially the wide stock, you will find numerous small checks down the middle of the board, and when board is dressed these checks will show up two or three times as bad. This is caused by turning full head of steam on lumber, when same is right from the saw. The large mills have so much stock to dry that they are forced to rush stock through kilns just as fast as possible. On the other hand smoke dried stock is dried in open kilns and takes considerable more time to dry as process is much slower, being merely a fire built underneath lumber on a frame structure. Therefore all the life is taken out of the lumber and same will not show checks as in steam dried. But if you do not know the concern you are buying from by all means stay away from smoke dried yellow pine, unless they guarantee same to be free from stain, as there are a number of concerns in the south who will not watch the drying of this stock and consequently same is badly stained when it arrives here.

## Courtesy in Business

From time to time our attention is called by business men and others to the growing lack of courtesy in business. Sometimes the complaints refer more especially to the answering of telephone calls. Sometimes it is the incivility and indifference of clerks and office staff, and at other times it is the lack of courtesy on the part of the employer himself. Whatever the cause it is to be regretted that this tendency towards discourtesy is growing. Undoubtedly the present is an age of hurry. The man of business that does not hustle is left behind in the race. Competition is keen and competitors often unfair in their methods. While we acknowledge the keenness of business competition and the age of hurry in which we live, we still contend that there is time for the little courtesies which make our business life pleasant. These little courtesies are to business what oil is to machinery. It takes very little more time to give a courteous answer than it does to shout a rude reply.—Exchange.

# Opportunities for Foreign Trade

### Opportunities in Export Trade for Canadian Manufacturers

The following enquiries have been received from England and other countries relating to Canadian trade. The names of the firms and their addresses can be secured by interested parties by writing to the Enquiries Department, Canadian Woodworker.

Any of our readers who are answering the enquiries should not fail to forward references—particularly if bankers references.

59. **Agricultural implements.**—A Norfolk firm wishes to get into communication with Canadian manufacturers of agricultural implements suitable for British agricultural districts.

60. **Agricultural implements.**—An Oswestry firm is open to represent some Canadian firm of agricultural implement makers in England.

61. **Laths.**—A Liverpool firm is in the market for large quantities of laths (both pine and hardwood) and would be glad to receive quotations from Canadian manufacturers who can fill orders promptly.

62. **Wooden handles.**—A Midlands manufacturer of tools invites quotations from Canadian manufacturers of hickory hammer stales, and also of wooden handles for small tools.

63. **Agents.**—A Sheffield company manufacturing high-class tool steel, also saws, files and drills, is looking for responsible Canadian resident agents.

64. **Orham wood.**—A Lancashire firm is open to receive quotations for orham wood for coffin making in car lots.

65. **Maple flooring boards.**—A well established firm in Lancashire is open for prices of maple flooring boards in any quantity.

66. **Quebec birch.**—A Lancashire firm is open to receive prices for Quebec birch in log and plank.

67. **Harverting machinery.**—A Wolverhampton firm is open to receive catalogues and quotations on harvesting machinery.

68. **Agricultural implements.**—A Lancashire firm would be glad to negotiate with Canadian exporters of agricultural implements.

69. **Agricultural implements.**—A Northampton firm is open to purchase specialties in agricultural implements.

70. **Round pine splits.**—A Birmingham firm is desirous of obtaining round pine splits for making matches (pine vestas). Samples must be sent.

71. **Engravings.**—A London correspondent desires to get into touch with Canadian wholesale picture dealers open to take up the sale of engravings.

72. **Slotted whitewood handles.**—A Liverpool manufacturing company is in the market for supplies of slotted whitewood handles cut to specification, and would like to receive quotations from Canadian manufacturers.

73. **Maple dowels.**—A London firm wishes to contract for monthly supplies of maple dowels and desires quotations, upon specification, from Canadian manufacturers. Specifications supplied upon application to Department of Trade and Commerce.

74. **Lumber.**—A large importing firm in Buenos Ayres desires to be placed in touch with shippers of spruce and white pine. Quotations should be for the usual River Plate specifications. This firm could take from ten to twelve million feet per year. They would be glad to hear from British Columbian as well as Eastern firms.

75. **Carriages.**—A large importing firm in Buenos Ayres desires to be placed in touch with manufacturers of carriages. Quotations must be c.i.f. Buenos Ayres, and shipping weights, &c., must be stated.

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### Want West Indes Trade

Canada is after the trade the United States has with the West Indies. The imperial government is negotiating with the West Indies to improve trade between that country and Canada.

It is probable that the minister of trade and commerce, Hon. G. E. Foster, after the house at Ottawa closes, will go to the West Indies to discuss a proposed reciprocity agreement between Canada and the greater portion of the islands.

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### $600,000,000 Capital

$600,000,000 of new capital has come to Canada in the past 11 years as the result of immigration, as stated in the annual number of the Monetary Times.

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### Typewriters in China

Typewriters are now made for use in nearly a hundred different languages, and they are sold all over the world, but there is still one great nation which, for a very simple reason, has no typewriters that write its tongue. That nation is China.

The English alphabet has twenty-six letters, the Russian thirty-six. The typewriter produced for the Russian market is the largest made, but no typewriter could be made that would begin to be big enough fof the Chinese language, which has no alphabet, but is represented by sign characters, of which there are about 50,000. Of the great number of words found in the English language only a small proportion are used for the ordinary purposes of speech, and the same would be true as to the characters used in the Chinese language, but the number of Chinese characters commonly employed is still far greater than could be put on any typewriter. So this nation of 400,000,000 people has no typewriter in its own tongue.

But that doesn't mean that no typewriters are sold in China. More and more Chinese are learning other languages besides their own, andChinese merchants and resident foreign merchants use typewriters, and they are used in legations and in consular offices and in banks and shipping offices and colleges and by missionaries, by various people. Altogether there are sold in China a good many typewriters.

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### Cathedral Oak Finishing

A good mission finish is obtained as follows: Put on a coat of Cathedral oak water stain. When this has dried sandpaper with No. 00 paper and then put on another coat diluted about one-half with water. Rub this lightly when dry and put on a very thin coat of shellac. This is to keep the filler which follows from discoloring the high-lights. When the shellac has hardened sand lightly and put on a coat of paste filler. Use a light filler colored with Van Dyke brown in the proportions of one pound coloring matter to twenty pounds of filler. Upon this filler, when it has hardened, put a thin coat of shellac.

Sand lightly and follow with two or three coats of floor wax. The directions for applying the filler and the wax will be found upon the respective cans in which they are purchased. This gives a light brown effect and is known as Cathedral oak finish.

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### Abolition of Steam in Lumber Camps Will Lessen Fires

At the lumbermen's convention that recently closed at Portland, Ore., the principal subject of discussion was the prevention of forest fires. On account of the great loss to the timber industry this matter has recently received much study, and reports were made by some of the leading forestry experts.

One of the most radical changes suggested was the substitution of electricity for steam in the camps. This has already been done in some of the big Pacific coast logging camps and has resulted not only in security from fires, but in great saving in operating expenses. Oil-burning engines have already been made compulsory in some States upon railways passing through extensive forest tracts, and the railroad men may now find themselves forced to go a step further and adopt electric motors. Cigarette smokers may also find it somewhat more difficult to get work in logging camps. Still, to show that lumber men are not opposed to tobacco, some of the members of the association proposed that employers supply the operators with cigar lighters that do away with the danger from the unextinguished match.

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### Make Use of What You Have

**By Erank Wood in Business Philosopher**

Success is the result of getting what you want.

The way to get what you want is by making the best use of what you have.

Simple, isn't it?

Are you making the best use of your time or are you spending a part of it in dawdling around or pondering over the past or building air castles for the future?

If so, quit it.

Map out a schedule of work and play, recreation, planning and rest, and stick to your schedule until you are putting in your time just like a millionaire. You will then be well on your way towards being one.

Are you making the best use of vour energies or are you spending your time on trifling things?

Quit it.

Do things that are worth while and do them in a way that is worth while. People will soon be realizing that you are worth while.

Have you information in your office that you don't use?

Make use of it. Let the people have the benefit of it.

If you are a professional man, tell people how to take care of themselves. You won't lose and clients by such practice.

Have you room in your office or in your shop that you don't use?

Get rid of it.

Clean up.

Get rid of the junk piles.

The world will never be so big that space in it won't be valuable.

Make every foot of space count for some useful purpose.

Have you talents and abilities that you are not using?

Put them into action. Make them bring you in something, either in money or knowledge or happiness.

Put things into action and watch them grow.

Simple, isn't it?

By making the best use of what you have, you may get what you want.

And "Getting what you want is success."

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### Recent Inventions

Reversing mechanism for power driven machines. —C. Frederickson, Rice Lake, Wis., Among the principal objects which the present invention has in view are: the provision of a simple, efficient and durable means for varying the speed in transmission from a driving to a driven belt; and to provide a mechanism of the character set forth, simple and effective in operation. The mechanism may be used in conjunction with any suitable machine.

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Drying Wood by Electricity.—Alfred Upton Alcock of Perth, Western Australia, in a patent No. 1,007,513 provides an electric apparatus for drying timber, which includes liquid electrodes adapted to engage the ends of the piece of timber to be dried, a source of electricity and conducting wires which lead from said source and have their free ends immersed in the liquid electrodes to form a circuit.

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Roof Framing Square.—H. H. Criss, P. O. Box 603, Globe, Ariz. This invention is an improvement in roof framing squares, and the object of the invention is to provide a simple device by means of which rafters of all kinds may be laid off with absolute correctness, and without the necessity of any calculation upon the part of the user.

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### Canadian Lumber

Advance official statistics for 1910 place the Canadian yield of lumber at 4,900,000,000 board feet, worth over $75,000,000. Of the 26 native species of wood cut, the first nine were soft woods, spruce being the most important, as it furnished one-fourth of the total cut. Spruce and white pine together formed barely one-half of the 1910 cut, while in the year previous these two species made up nearly three-fifths of the total. This decrease in proportion is due not to a smaller cut of the two species, but to a great increase in the amount of Douglas fir, htmlock, cedar, and yellow pine produced in British Columbia. One-fourth of the 1909 cut was formed of these four species, while in 1910 the total cut of the four was increased 70 per cent. Up to three years ago white pine stood at the top of the list, when it was supplanted by spruce, although the actual cut of the former had not decreased. The prediction of last year that white pine had nearly reached its maximum yield has proved true, as the cut shows a falling off of 4 per cent., or 42,000,000 feet, as compared with 1909. In British Columbia the cut of yellow pine has increased nearly 600 per cent. in one year. This increase, amounting to over 150,000,000 feet, was sufficient to raise it in importance from fourteenth place to sixth place among the different species.

# Some Facts About the Manufacturing and Laying of Hardwood

In many parts of Europe oak has been used for several years for flooring purposes, and the durability of this wood is shown by the condition of oak floors one or two hundred years old. Recently there was torn down in London a house, the floors of which were in almost perfect condition, although they had been laid three centuries before and had received only an occasional repairing in the interim.

While the density of the texture of oak makes it almost indestructible through wear, it is the tannic acid in it which makes it almost immune to-day. No description of the beauty of the grain and figure of the oak is needed, for this is well known to every one who has ever seen or used it.

To-day hardwood flooring is considered a necessity as well as a luxury. It is employed in the small as well as the large houses, and the difference in the grade of the wood is the only marked variation in the class of work. Even a second or third grade floor of oak is cheaper than carpets when its great durability, cleanliness and sanitary advantages are considered. The builder of even a very modest home can afford to make his floor of oak or some other hardwood.

In the mill production of hardwood floors, the cheapening of the cost and increased satisfaction must be looked for. When the carpenter or builder cut up his own strips of hardwood and matched and planed them off to fit, the cost was naturally high and the workmanship often faulty. The advent of machinery and mills for manufacturing hardwood floors brought the cost down to the house owner even in the face of advancing prices for lumber. Moreover, the manufacturers have standardized hardwood floors so that every man knows just what he is buying. This standardization includes not only the shape and size of the strips, but the quality of the wood and its treatment. All oak flooring leaves the factory in perfect physical condition, and the carpenter has simply to follow the directions carefully and handle it with care.

One of the gains admittedly made through the improvement of machinery in manufacturing hardwood floors is the utilization of all lengths by ingenious methods of end-matching. Ten years ago only long lengths were considered of use for flooring. This meant a great waste of good material and difficulties that could not be overcome by the carpenter. To-day short pieces are not only utilized, but medium length sections are considered more satisfactory than the long ones. The process of end-matching is simple. The stock is cut at the mills to meet all such requirements, and the carpenter who understands his business can work around short corners and in alcoves just as satisfactorily as elsewhere.

The manufacturers of flooring have standardized both the width and thickness of the strips, which is another economy in lumber and labor. The three standard thicknesses used are 13-16-inch, 7-16-inch and 3-8-inch. These are found to be the most satisfactory from every point of view in laying old or new floors. The first size can even be laid with perfect end-matching without any under floor so that an economy of material is obtained. This is particularly of value in summer houses whert no double flooring is needed to keep out the cold winds. Narrow widths are now considered more satisfactory than wide ones, and experience has shown that a floor laid in this way is really more durable than one with two or three-inch strips. The narrow strips lay flatter, and stay in position, and there is no danger of cupping. The appearance of the floor is also better, for the grain and color of the wood can be blended more harmoniously and there is less danger of wide interstices between the sections. The strips can be laid closer together and held there without danger of springing.

A fact not always appreciated by inexperienced floor layers is that the stock which leaves the factories is not like ordinary lumber, subject to warping and springing. The physical properties of the wood are perfect. To begin with the wood has been carefully kiln-dried, cooled, and then milled accurately. After that it has been stored in well-ventilated warehouses and shipped in perfect condition. For this reason floor layers should not handle it as ordinary lumber. In the first place it should not be unloaded and transported on rainy days or exposed to a damp atmosphere. Likewise it should be stored only in well-ventilated places free from moisture. Flooring piled up in open sheds will quickly deteriorate, for the amount of moisture it will absorb thereby injures it. The stock swells and ruins the perfect mill work. Hardwood flooring is intended only for interior work, and therefore it should be treated as such. The floors should be the last work in a house. If laid before the plastered walls have dried thoroughly, there is danger of warping and swelling due to the excess of moisture absorbed from the wet walls. Yet this mistake is quite common, and good floors hopelessly ruined.

Hardwood flooring stock is made by the mills in several grades, but the demand is more largely for the first or best grade for ordinary house finishing. On the other hand it has been demonstrated in a practical way that the other grades have almost as long a life of usefulness, but the first appearance of the floor is not so satisfactory. As a matter of fact, however, builders who have the interest of their clients at heart can do much toward recommending the various grades for different parts of the house. Thus the first grade of quartered oak might be used for the drawing room, and the second grade for halls and other rooms. The first grade of quartered oak flooring is made from selected lumber, and it is the best than can be secured. The wood is clear and free from knots and defects. Color does not enter into the quality of the wood, but the face of it must at least be perfectly clear. The second grade of quarter-sawed oak flooring must be practically free of defects, but the face is not so perfect as the first. Both grades are suitable for high-class dwellings.

In the plain-sawed oak flooring, the price of the first grade is about the same as that demanded for the second-grade quarted-sawed. The second grade of plain-sawed oak may have pin-worm holes, but otherwise the face is pretty clear of defects. The lower grades of plain-sawed flooring may contain many defects such as knot holes, but is good enough to lay a serviceable floor that will last. The choicest grades have certain wood markings which increase their value, and the selection of special lengths to match other strips is always an increased expense.

There is very little difference between the best grades of hardwood flooring. It is largely a technical difference, although the grain and figure sometimes

count a good deal. A good floor layer can make an excellent job with any of the top grades, and even with the common plain-sawed strips an expert can produce wonderful results.

The lower grades of plain-sawed oak are intended chiefly for factories, warehouses and cheap tenements. The stock is made with this idea in view, and is cut to withstand heavy wear. Special factory stock is made by the mills to resist the wear and tear of heavily-loaded hand trucks, and the durability of hardwood floors was never better demonstrated than in this service. Hardwood floors of stores and factories have resisted the rough usage of heavy trucks for years without breaking down.

The grade of flooring, suitable for factory and cheap tenement houses, costs approximately one-helf less than the first grades employed solely for private houses. The oak is often as good and serviceable as that used for the best work, with the exception of pin-holes and slight defects of color and figure. The wood is just as durable, and in many respects presents as fine an appearance when laid and finished. Another use is for the center of large rooms with a border of more expensive wood around it. As the center of the room is covered with rugs, the cheaper oak is not noticeable, and the selected strips for the border carry out a perfect finish. From sixty to seventy per cent. of the cost of wood for the flooring is thus saved.

The mills make one-and-a-half to two-inch wide strips for ordinary flooring, but special widths can be ordered. The advantage of the narrower strips is evident for ordinary rooms, but for very large rooms the two-inch strips are probably more satisfactory. Still with the improved end-matched strips, it is possible to nail any of the narrow widths so that the nails will not show, and the finished floor is almost perfect. The narrow widths when properly laid are less subject to atmospheric changes and conditions, and for this reason as well as superior finish this type of floor is most in fashion.

While oak is the favorite wood for flooring, a good many of the other hardwoods are employed, especially the maple, birch and beech of the North. The darker woods are useful for borders and contrasting designs. Our native black walnut is an excellent wood for borders, and it is used extensively. Circassian walnut is popular for border effects, and also many of the gray woods. These latter are largely imported in the log, and then cut in appropriate sizes by the mills in this country. Mahogany has its limited use for flooring, and it will always be needed for certain border effects.

Hardwood flooring that comes from the mills tongued and grooved to end match other strips is easily put down, but a little expert knowledge is necessary for a good job. The various improvements of hardwood flooring include so-called wood carpet and other devices. With the strips of wood cut and laid on some material used for a stout backing, and glued firmly in position, the carpenter has little more than to cut to fit measurements. This method of laying wood floors is popular for show windows and other places where there is no wear or tear to amount to anything. But large quantities of it are also laid in private houses, especially in bed rooms and smoking rooms where usage is light. For rooms and halls where the wear is extensive there is no substitute for the hardwood strips cut and laid with tongue and groove, and nailed firmly to an underfloor. Floors thus laid will last a lifetime, and will give satisfactory service.

The increased use of hardwood floors has stimulated the growth of a branch of carpentry that was formerly of little account. Wood scraping machines are made by the thousands to-day, and those adapted to hardwood floors simplify the problem of rejuvenating them. Scraping, however, is due largely to the result of neglect and carelessness. Hardwood floors get stained and dirty through improper care, and then the only way to clean them satisfactorily is to scrape them. Fine hardwood floors may also be injured by scratching with heavy furniture carelessly moved across them. Such marks, too, can be eliminated only by the scraping machine. A properly laid hardwood floor given the ordinary care bestowed upon carpets and rugs will last a lifetime without the need of scraping, but if neglected and abused for a few years the surface may get into such a condition that scraping is the only remedy. There is as much education needed in the art of caring for hardwood floors as there is in laying them.—Hardwood Record.

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### When Paint Spots

In two-coat work poor lumber and thin painting often cause spots on paint. The oil penetrates into the wood more freely on cross grained and other porous surfaces, and the result is flat places in the paint which fade more quickly than a glossy paint. This makes the work look spotted.

Spotting due to poor lumber and porous surfaces can be guarded against if more care is taken in applying the priming coat. Make it a point to thoroughly fill all extra porous places twice before the second coat is applied to the entire building.

The practice of applying a coarse dark priming coat is another cause of spotting. This dark under coat is likely to show through in spots where the paint is put on too thin.

The use of too much japan, fatty or poor quality oil, which makes the paint dry, tacky and soft, often results in mildew, which causes spotting and degeneration of the paint film.

Another cause of spotting is sufficient and improper brushing out of the paint, particularly on the priming coat. A great many painters still fail to realize that the priming coat requires as much care in applying as the second or finishing coats. Many jobs show "laps," and when the second coat goes over a priming coat which shows "laps," trouble usually results.

The surface has at least one more coat where the "laps" show than the balance of the job, therefore the paint is very likely to show spots when it fades out.

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In the town of Marlybone, England, there were recently unearthed a number of old water pipes, which were formerly used for conveying water from some of the conduits and wells of the Metropolis. The excellent condition of these pipes was astonishing, the timber being in many instances as fresh and sound as when felled, probably a hundred years ago. It is well known that when elm is kept under soil or water, its lasting properties are greatly increased, and so it would appear with thtse water pipes, the logs being practically intact. After exposure to the atmosphere a gradual change takes place, and in this case the sound logs gradually crumbled away.

# Wood Used for Vehicles

In buggy bodies the preferred woods for panel work are poplar and cottonwood, and for framework, ash. Many substitutes have been used because of the scarcity of poplar and ash. Red gum, basswood, silver maple, and buckeye are used to some extent for panels, and maple, oak, beech, red gum, rock elm, white elm, hackberry, butternut, and pecan are used in the framework. Of the new woods, maple and red gum are used to the greatest extent. Sheet iron has been tried for panels, and complete bodies are now built of steel, but are only slowly coming into use. Red gum is much used for buggy bottoms and for all parts of sleighs.

Rock elm has an elastic toughness coupled with a certain degree of hardness that has given it precedence in hub manufacture. These qualities allow the spokes to "settle in the hub so that they form a close union without crushing the fibers. Black locust has this characteristic to a lesser degree, and persimmon, black birch and dogwood are fairly satisfactory for hub manufacture.

For buggy poles, shafts, spokes, and in the gear work, except for axle caps, for which maple has been largely substituted, hickory is practically the only wood used.

### Heavy Vehicles

The following is a list of parts and the woods commonly used in the manufacture of heavy vehicles:

Box boards—Yellow poplar, cottonwood, red gum, tupelo.
Box cleats—Yellow poplar, cottonwood, rock elm.
Box beds—Longleaf pine, birch and oak.
Bed cleats—Oak, rock elm.
Axles—Hickory, maple.
Bolsters—Oak, hickory.
Sand boards—Oak, hickory.
Poles—Oak.
Brake bars—Oak, rock elm.
Reaches—Oak.
Standards—Oak, rock elm, hickory.
Hounds—Oak, rock elm.
Spokes—Oak.
Rims and felloes—Oak, Osage orange (southern trade).
Hubs—White, red and willow oak, black and yellow birch.
Doubletrees—Hickory, rock elm, oak.
Singletrees—Hickory, rock elm.
Neckyokes—Hickory, rock elm.

A wood suitable for wagon-box boards is primarily one which does not warp or split and is easily worked. The quality of resistance to abrasion is of importance, but durability is not considered. For box boards, white pine, when plentiful, was used almost exclusively; but yellow poplar is now the favorite, though cottonwood is largely used, and much of it is sold as poplar. Red gum, Douglas fir, western yellow pine, western spruce and redwood have been used to a limited extent. These woods have answered the requirements fully where attention was given to overcoming small difficulties in handling. One objection to Douglas fir is that when passed through planers the softer and more spongy springwood portion of the annual rings is torn out, which leaves the summerwood portion raised and gives the surface a ribbed appearance that increases the difficulty of getting a good finish. This disadvantage may be obviated, however, by increasing the speed of the planing machine and decreasing feed.

The relative merits of maple and hickory for axle manufacture have been a matter of contention for years. Both woods are extensively employed, though maple finds greater use in the northern trade while the southern trade prefers hickory. Endeavors to substitute steel for wood in axle construction have met with disfavor, since steel lacks the resilience of wood; the steel axle is described as "dead," the wood axle as "live."

For bolsters, longleaf pine has been put upon the market as a substitute for oak, and has given satisfaction, though a coniferous wood as a rule will not hold the hard wood, because the fibres crush more easily.

White oak and white ash were used formerly for poles, but the increase in price of ash has led to the general use of oak, supplemented to some extent by Douglas fir and longleaf pine. In general the white and red oaks are now used indiscriminately and little choice is made between the two, exceut in special orders for select stock.

The excessive checking, coupled with the high price of white oak, has led to the substitution of willow oak, red oak, and black and yellow birch for hubs. Birch hubs give the best results when they are shipped to the manufacturer in winter. Put into the warehouse while frozen, they can dry out gradually during cold weather, so that by the time they are sent to the dry house they are already comparatively dry, and molding has been prevented.

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### Artificial Wood for Matches

The buoyant prices of lumber, here and abroad, have given an impetus to substitutes for wood. Imitations are frequently reported. Enthusiastic as are these announcements they seldom if ever fail of being ahead of the reality.

A plausible plan is the treatment of a vegetable fiber with some tough adhesive. The latest of this class comes by way of the Engineering Supplement of the London Times and is as follows:

A process for the manufacture of artificial wood from straw or dried grass, now in the experimental stage, was shown by Louis Carre, of 24 Mark Lane, E.C., London. At the outset it is proposed to utilize the process for the manufacture of matches, for which it is claimed to show considerable economy as compared with the cost of the methods and materials at present employed.

For this purpose the straw is passed longitudinally through a pair of crushing rolls, and then between a pair of cylindrical cutters which divide the flattened straw into strips. The surface of the cutters are deeply serrated, and are placed together so that the groove of one cutter receives the raised ring of the other. The straw, supplied with an adhesive, is fed to a traveling band, and is inclosed on top and underneath with layers of paper.

The layer of straw and paper is passed through a pair of rolls under pressure, and then between a pair of endless chains, one upper and one lower, the links of which form metal molds, and are constructed with longitudinal grooves, the edges of which meet opposite one another. The molds are heated, and are pressed together for a sufficient time to enable the

agglutinant to harden. After passing between the chains the straw and paper issue in the form of a layer of round splints, which after being cut into the requisite length for matches are dipped into the ignitible composition.

### Tricks in Antiques

Although there are many dealers in art treasures and antiquities who are scrupulously honest and have never intentionally sold an object which was not exactly what they described it to be—and what to-day, in quite a number of cases, are prepared to give 10 per cent. profit upon the return of almost every article they have sold during the last ten years, so greatly has the value of these increased within that period—it is a fact that there are many others, who, taking advantage of the modern craze for collecting, resort to all sorts of dodges in order to impose upon the ignorant.

For instance, according to "The Bargain Book," it is quite a common trick for dealers to distribute part of their stock in farmhouses and cottages, in the hope that enthusiastic strangers will assume that they have been there for generations. After thus stocking a cottage the dealer casually mentions to customers that he has been told of a certain cottager who has some very good antique "stuff," and that he himself has had no time to verify the report. Of course, the address is romptly asked for by the enthusiastic collector, who is thus led to purchase goods which he might not otherwise think if buying.

This is a somewhat common and fairly well known trick, and the consequence is that some dealers have hit upon a more ingenious method. They arrange with some well known man or woman "in society," who is furnishing a new house, to decorate it with fine furniture, pictures and prints, supplied free on the understanding that should a visitor admire any of them they are to be sold if possible, and that a handsome commission will be given on the transaction. "There are certainly in society," say the authors of the book mentioned, "many who add to their diminished incomes by either selling works of art themselves or acting as agents for dealers.

"A well-known connoisseur, when recently visiting a duchess, had the following experience:

"The lady was delighted to see him; she particularly wished for his advice and assistance. 'Algy has run terribly into debt; he may have to resign his commission in the guards. I cannot ask his father for money, as he is badly hit by the depression in agriculture. You know all the rich Americans and the value of fine furniture; could you possibly help me to sell that magnificant Louis Seize piece. It was given to a former duke by the Emperor of Russia, and it was always said to be worth many thousands of pounds.' The visitor looked at the bit of furniture —it was one he had seen at the shop of a celebrated dealer, who had resorted to this device to try to get rid of it."

Also when buying antiquities some dealers resort to trickery. For instance, three dealers, by arrangement search the farms and cottages on the following plan:—The first calls at a cottage, and, seeing an object of value, offers a trifling sum for it, which the owner is disinclined to accept. Some days later the second calls, and, seeing the piece, at once pronounces it to be valueless. Meantime he is followed by a third, who offers even less than the first had been prepared to pay; then the discouraged cottager probably accepts the smaller sum. If the offer is refused, the first returns and pays the price the owner originally required.

### Strain on Hoisting Rope Due to Slack

Experiments made by placing a dynamometer between the rope and the cage in a hoisting plant showed conclusively the bad effects of starting the load with a jerk due to a slack rope. When there was 2½ inches of slack, the stress on the rope was 39 per cent. greater than if the load were lifted slowly and gently. With three inches of slack the stress was 65 per cent. greater than if lifted slowly and gently. With a slack of six inches, the stress was 122 per cent., or more than double, and with 12 inches slack the stress of the rope was three times as great as when starting slowly with a taut rope. Such sudden stresses on hoisting ropes necessarily cause deterioration in the strands, which eventually result in breakage, even sudden breakage of the rope. The jerk can be greatly reduced by care on the part of the hoisting engineer, and the insertion of a good spring connection between the cage and the rope.

### A First Impression

There is a saying that first impressions are lasting. These first impressions that many a visitor gets in a shop come to him from the reception or waiting room. If he is discerning, what does he think of the up-to-dateness of the concern when he finds before him a table covered with a matley, disordered collection of magazines and periodicals with the uppermost ones months old? If his call is in August, he may pick up at first a paper of December of the year before, or a journal of the preceding February, or a magazine of March. A very little of the ambitious office boy's time would keep the files of regularly received periodicals up to date, with the current number on top. This is a small matter, but one, that properly attended to, promotes an air of general efficiency.

Robert Herrick, the author, was talking at a luncheon in Chicago about literary figures.

"Figures," he said, "are only good when they illuminate, when they underscore or italicize, one's meaning.

"As I passed a building operation the other day I heard the foreman employ an excellent figure.

"What are ye doin' up there Smith?" he shouted from the pavement.

"A head appeared above, and an injured voice replied:

"'Layin' bricks, of course,'

"'Well, by gosh,' said the foreman, 'from yer silence ye might be layin' eggs.'"

A copy handsomely bound and printed, of a recent report of the Conservation Commission, on Canada's water-powers, has been received by the Canadian Wood-worker. With its complete and exhaustive maps, and dttails, the book makes a welcome addition to the library. It treats of the various powers, and companies throughout the Dominion in a thorough and interesting way.

Superintendent Simmington, of the Wise Company, St. Catharines, told a representative of the Woodworker, that business had never been better or prospects so bright as at present.

# How Saws are Made

One of the great tool factories in the U. S. gives the following description of the manufacture of saws.

A saw is not just a sheet of metal with teeth cut in the edge. That is, the twentieth century saw is not so constructed. That kind of a saw was good enough to supersede pieces of flint or serrated metals used during and following the stone age, but the high pressure of the twentieth century has made it necessary to produce saws which are not only abreast, but ahead of the times, which will run easiest, cut fastest, and hold their edge, teeth and tension under unusual forced conditions. It is necessary, therefore, to employ steel of a special quality, differing very materially from that which is used in other branches of manufacture.

Saw steel must be of the very highest grade, close-grained, tough, hard, but not brittle, so that when it is sharpened it will retain its cutting edge and tension under the most trying service. It is a fact that no matter how closely the material and processes of manufacture which enter into the making of steel are safeguarded, it is a physical impossibility to avoid some slight variation.

Saw steel should be made of virgin ore, and the formula specifies large quantities of rather expensive ingredients, but by far the most important factor is that of proper heat treatment. The slightest variation in this regard, or the neglect to properly clean the crucibles, will produce a corresponding variation in the product. The steel mill may, therefore, carefully analyze every product going into the furnace, and may surround itself with every apparent safeguard and yet be unable to produce batches of steel of absolute uniformity. It is necessary, therefore, for the saw maker to use every possible safeguard in the way of chemical and physical analysis, in order to be assured that his saws will be of uniform temper, and for this reason, reject and return to the mills every plate of steel received which is not absolutely up to specifications.

Being assured of the fact that the saw plate itself is of proper material, the first process of manufacture is that of toothing. This is a purely mechanical process, but requires ponderous machines and absolute accuracy of construction. It has also given the sawmaker an opportunity to display his inventive genius to the highest degree. In the modern plant there must be an endless variety of machines for this purpose, each covering a certain type of saw; machines which must accurately and with the greatest economy produce the small fine teeth of the mitre saw and then those covering the other various types, such as hand, rip, cross-cut, band, circular and other saws.

From the toothing room the saw advances to the tempering process, and here we find one of the most intricate and painstaking operations in the evolution of the perfect saw. As the process used by the most successful manufacturers is exclusive, we must pass on without too much detail, but it is needless to say that it is one of unusual minuteness of detail, for the slightest variation here may undo all the safeguards which have surrounded the bringing of the plate up to this stage. In the first place, the piece of steel is heated to a bright red and immersed at that heat in whale oil. The action of the whale oil serves to render the steel as hard as glass. Naturally, this extreme hardness will not serve the purpose of a saw. It renders the saw brittle, and therefore it becomes necessary to reduce this temper to the proper degree required for the class of saw which is to be made from the particular steel. This is done by the application of heat in other furnaces, and is called the drawing process.

After the hardening and tempering process, it is necessary that each saw of whatsoever nature, should be straightened and tensioned before it is ready for the subsequent processes. In this straightening or smithing department the highest quality of skilled labor is required in the manufacture. The men who do this work are called saw-makers, because to their skilled judgment the proper tension of the saw is due. The different plates are put upon an anvil and hammered by a hand process, though in the case of band saws a power hammer, or power roll is often used to excellent advantage, and in some cases the power hammer can be used to advantage on circular saws. Without this process a saw will not run true, nor would it be able to stand up and do its work in all kinds of wood and with all sorts of speeds and feeds. The tension has to be regulated in power saws to suit the speed and feed of the particular mill in question.

The grinding room is one of the most interesting departments of a modern saw factory, in which the utmost care and precision must be used, for here the saw, which is of an uneven thickness throughout, must be ground down to the proper gauge so as to give it the easiest movement while in action. The mammoth band saw must be ground to an even thickness throughout its entire length and width. The finest types of cross-cut saws are "segment-ground," a process which enables them to cut rapidly and easily with but little set to the teeth.

A "segment-ground" cross-cut saw is of even thickness along its entire tooth edge, and two gauges thinner on the back at the end and four to five gauges thinner on the back at the centre. It tapers gradually towards the back, which is the thinnest point. This construction is scientific, as the thickness is placed at the point necessary in order to give the saw stiffness, and the tapering of the blade at the exact point where ample clearance will be given. This is an intricate process, requiring special machinery, and it produces saws of greater efficiency than any other.

The hand saws are taper ground, so that the tooth edge is the thickest part and a gradual taper is given to the balance of the blade, so that its thinnest part is on the back, at the point. The circular saws are ground down from the tooth edge towards the centre, and similar treatment is given to all classes of saws, so as to secure the easiest running quality.

After grinding, it is necessary that all saws should go through a second hammering process as the process of grinding disturbs the tension of the saw more or less, and it is necessary that this tension should be readjusted before the saw is further finished.

After hammering comes the second grinding or skimming process, which is merely a light grinding to remove all trace of hammer marks after the first grinding.

The saws are then ready for the fitting of the saw teeth, wherein each tooth is properly pointed and

given an accurate and desirable pitch, so that it will perform its operations with the greatest economy. It is the natural ambition of the most successful saw makers to deliver saws which are ready for immediate action.

The saw is next passed to the finishing room for polishing, etching and packing.

It is needless to say that each of the processes enumerated above must be safeguarded by the most rigid inspection, as a failure to perform any of them would render the saw practically useless. In these various departments men of unusual ability and judgment are employed who have had many years' practical experience.

### Easily Found

It is often said that a Yorkshireman is so keen after money that he will grab at it dead or alive. A certain native worked at a sawmill, and one day he met with an accident, two of his fingers being cut off and dropping in the sawdust.

Of course the man was hurried off to the infirmary, and after he was gone his mates began to look for his fingers on the sawdust, when in walked the foreman, who said:

"I say, what are you wasting your time for? Why don't you get on with your work?"

One of the men replied:

"That Yorkshire chap has had two fingers cut off, and we're looking for them."

"What a waste of time!" cried the foreman. "We'll soon find them."

And he threw half a crown on the floor, when up came the two fingers wriggling out of the sawdust to get at the money.

### A Pointer for Resawyers

Here is a pointer for the resaw boys to stick a pin in and hang up too. There is a tendency, not a new one by any means, but rather stronger than ever before, to resaw stock so smoothly that for ordinary box-making it doesn't need to go through the planer. There was furnished recently, in one of the trade journals, by a well-known manufacturer of resaws, good evidence that resawing lumber in thin dimensions, so perfect as to not require surfacing, is not a new thing by any means, and presenting as proof of this the fact that his firm guaranteed, in 1894, to furnish a resaw that would take a 1-in. board that had been dressed on both sides to full 1-in., and make four pieces, which, when dressed on two sides, should measure in the aggregate 19/32-in. thick. So you see they were getting it down pretty fine on special occasions several years ago. It is only of late, however, that these special occasions have spread into what might be termed general practice.

One of the ends to be striven for these days is economy in lumber. That was one of the reasons that caused the band resaw to become popular. But economy in sawing lumber involves more than the reducing of the thickness of the blade and the spread of the teeth. It involves doing the work so smoothly that very little need be taken off by the planer to get what is termed a dressed surface. In some instances, as stated, it is the practice to use lumber direct from the resaw, without planing, but even when it goes to the planer it is important to get it so smooth with the resaw that a very light cut with the planer will smooth out all the marks. If the resaw has a long corner or two, the effect is just the same as if practically the whole saw were set to that width, because these long corners, scoring the surface of the board, make it necessary to plane to the depth of these scoring marks.

This is a point that experts in operating the band saw will do well to keep prominently before them, because the time is here when a man is not measured entirely by his knack at filing and hammering so as to run a given quantity of lumber through the saw. A prominent factor to-day is the condition of the lumber when it comes from the resaw, and the man than can turn out the best stock, even though he may not turn out quite as much in a day as the other fellow, has a mighty good chance of being rated higher than the one who has a record for quantity. In other words, resawyers are coming to be judged considerably by their saw marks.

### New Scheme for Storing Exhaust Steam

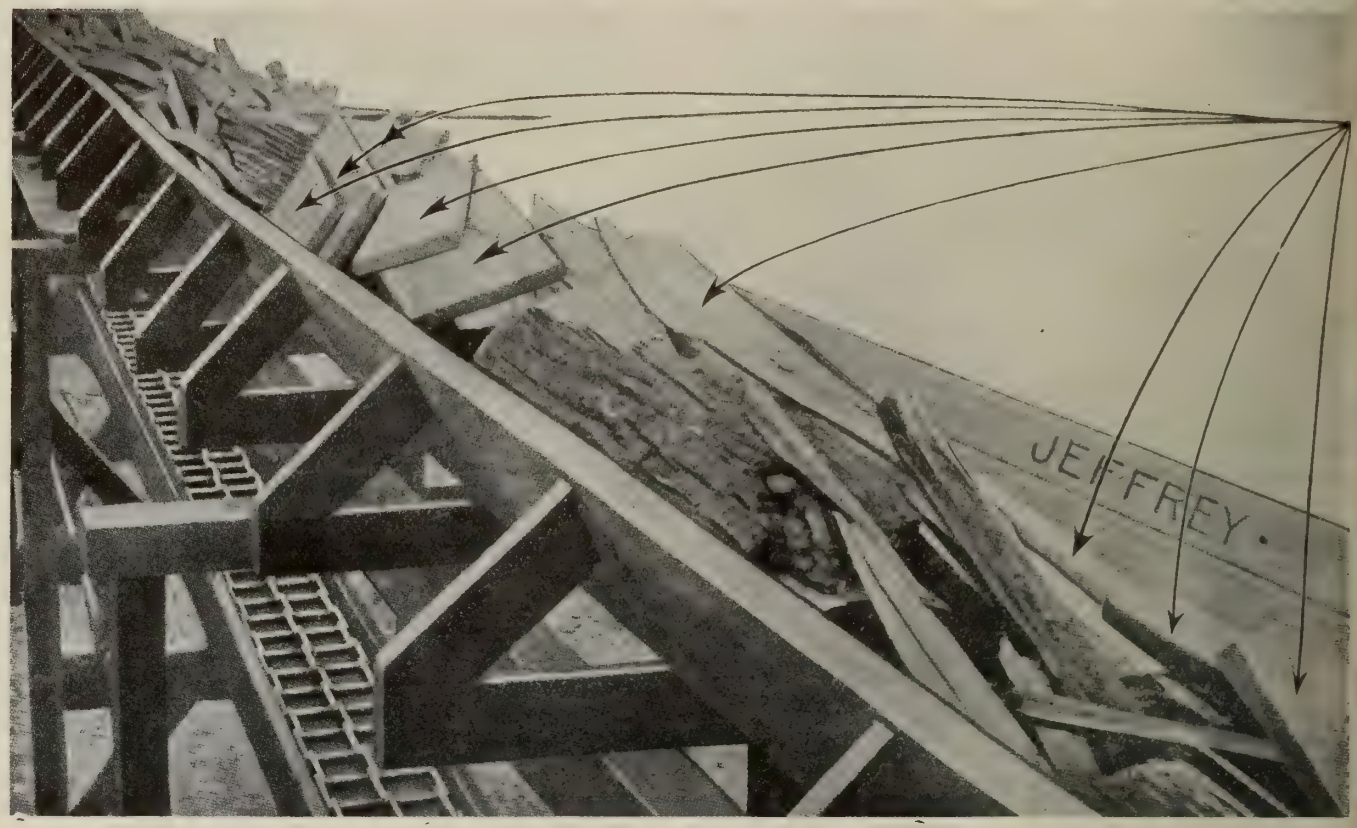
An exhaust steam storage tank partaking of the form of a gas holder, but for the same use as the so-called exhaust regenerator employed as an intermediary between a reciprocating steam engine, and a low-pressure steam turbine, has been built at the Carl Colliery of the Kolner Bergwerks-Verein. In this new scheme there seem to be no trays for catching intermittent condensation of the steam, leaving the resultant water ready to deliver steam at succeeding momentary reductions of pressure.

The steam storage holder has a double wall for heat insulation purposes. The holder proper is 2½ feet high and 27 feet 3 inches in external diameter, and is covered with the usual form of movable bell top such as one finds with gas holders, the bell top being 26 feet high and 23 feet in diameter. The seal between the holder proper and the bell is of water, with a layer of oil in the top to prevent evaporation of the water. In order to minimize the loss of heat through the portions of the bell in contact with the liquid, the metal is cased with a double layer of oak boards and the rest of the metal surface exposed is covered with two inches of asbestos.

The holder is employed in connection with a hoisting engine, which in the average of eight hours of work lifts 1,050 tons from a depth of 1,215 feet, and it receives also the steam from a compressor compressing 70,000 cubic feet of air to 90 pounds per square inch per hour. The exhaust is admitted into the holder from underneath at a middle point and passes through an oil separator before reaching the storage space. The supply of exhaust steam to the low-pressure turbine is taken also from the bottom of the holder. The rise and fall of the bell, of course, accommodates the steam as regards volume, and if the volume should become too great the bell automatically opens the safety valve. It is stated that with a bell capacity of 10,000 cubic feet of steam and a load of 500 kw. the whole of the exhaust steam from the winding engine during one lift can be accommodated, so that there is a minimum possibility of steam being wasted through blowing off.

A test for the loss of heat of the holder was undertaken by filling the holder with steam and noting the time required for the bell to descend a definite distance. It was found that the rate of condensation was about ½ pound of steam per square yard of area per hour, which is less than 68 B.t.u. per square foot per hour.

# CONSER




# The Linderman Auto

## at a very small cost per thousand will convert y

The same machine on which you work up your waste and short shorts, can also be used for making wide dimensio stock from mill culls and narrow widths,

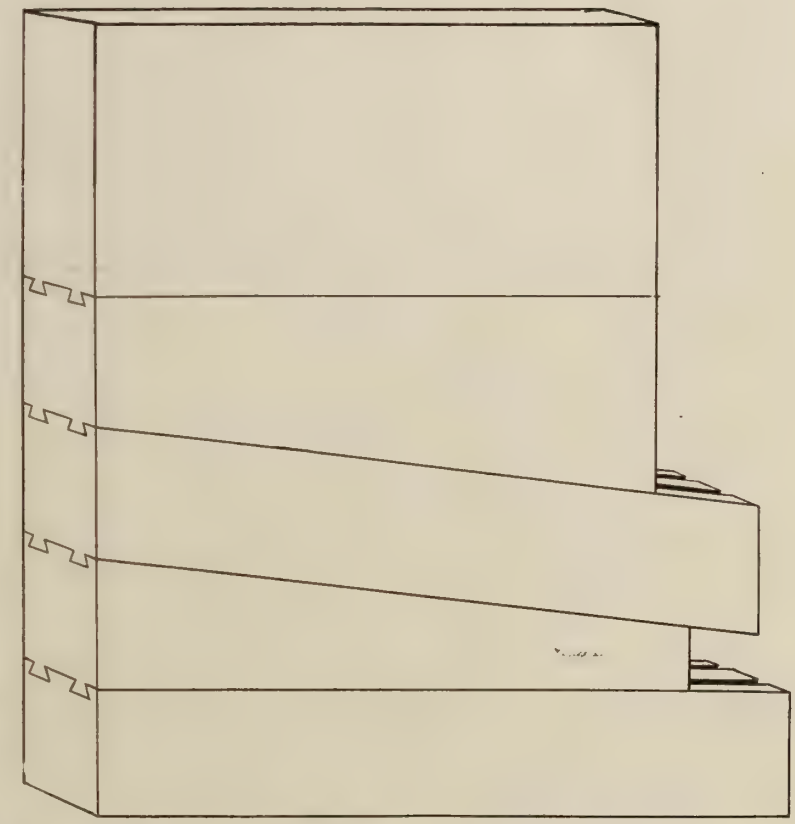
A prominent lumber manufacturer recently was convinced of the profitableness of so utilizing his by-products, aft ordering two machines he started out to establish his market, before the first machine was delivered the entire outp for 18 months of the two machines was sold.

Utilizing the by-products has greatly increased the fortunes of many—you too can can swell your own profits—yo have the waste—we have the machine. The proof can be obtained by sending us samples which we will match up a return to you.

There is a machine built to meet every different condition, the lumber can be long or short, narrow, waney or live edg tapering or straight, can be used for the manufacture of boxes, heading, sheathing, partitions, dimension stock, do or furniture cores, shelving, interior finish, casket, wagon or agricultural stock, car or furniture work.
Just tell us your conditions and we will outline our proposition to meet your particular case.

# Canadian Linderman

# VATION



sands of Dollars

ns of Feet

y Consumed by Burners

centage of your legitimate profit
conveyer carry to the burner?

# tic Dovetail Matcher

herwise waste product into marketable lumber.

# mpany, Limited

WORKS AT
WOODSTOCK, ONT.
MUSKEGON, MICH.

# Water-Powers of Canada

The first inventory ever taken of the water-powers of Canada has been completed by the Commission of Conservation and the results embodied in a large and profusely illustrated report just issued. The investigation made by the Commission, which has extended over a period of two years, shows that there are 1,016,521 horse-power developed from water-power in Canada. Every phase of the subject from the laws governing the disposition of water-powers in the various provinces, to the actual physical date regarding each individual water-power concerning which information was obtainable, is treated in the report. In addition there is a very full bibliography of 30 pages, and appendices giving, among other things, the text of the laws regarding the export of power and also of the treaty recently concluded with the United States regarding the establishment of an International Joint Commission.

### General Information on Water Powers

The volume opens with two chapters of an introductory nature that are concerned mainly with the general economic bearing of water-powers on national development. The relation of water to agriculture, mining, navigation, domestic supply and so forth, is dealt with, and the principles to be used in the interpretation of water-powers data are stated and discussed critically. The broad and optimistic statements very often made on the platform and in the press regarding our vast water-power resources are deprecated. To quote from the Report, "General statements implying that the aggregate amount of water-power must be great because the total water area, or watershed area is so great, or because there are so many lakes and rivers, are generalities to be considered of very little definite value. . . . . One of the chief dangers of such generalities is to create in the popular mind a feeling of unwarranted assurance that, even though desirable water-rights are being granted by a government, yet there is so much left, that no apprehension may be entertained regarding the amount of power rights being parted with."

### Valuable Statistics for Each Province

A chapter is devoted to the water-powers of each province in which the general features of the province as regards water-power development are discussed and an outline given of the law whereby powers are granted or leased to private individuals or corporations. The larger developments are also described. The statistical data given in tabular form includes the height of the fall, the horse-power that may be developed, the present development and the main uses to which the power is applied such as lighting, pulp and paper making, etc. Reference is also made to the possibility of increasing the amount of power developed by storage reservoirs and dams where such are feasible.

### Less Power Available at Niagara Than Expected

The power situation in Ontario is treated very fully, special attention being given to the power possibilities at Niagara and the conditions affecting development there. Each of the power companies operating there, whether on the Canadian or American side, is described in detail. A significant reference is made to the granting of franchises to develop power at Niagara Falls. The Report states that the low-water flow of the Niagara river would yield at the Falls about 2,500,000 h.p., of which Canada's share (one-half), would be 1,125,000 h.p. "Franchises have already been granted," it goes on to say, "and plants partially completed, for the development on the Canadian side of the river, of about plants partially completed, for the development on the Canadian side, of about 450,000 h.p. In other words, instead of 'millions' of horse-power being available, as has been sometimes stated, it appears that about half, and by all odds the better half, of Canada's usable share of Niagara Falls power has already been placed under private control."

### Special Report on Western Powers

The volume embodies all the useful information regarding the water-powers of Canada that has heretofore been collected and this has been supplemented and, in many cases, verified, by field surveys, conducted by the engineers of the Commission. In fact, all the information regarding the Maritime Provinces powers was obtained in this way last year by the experts of the Commission. The data regarding the Western Provinces was found to be so incomplete that it was decided to make special investigations of the powers in those Provinces, the results of which will be published next year in the form of a report on the "Water-Powers of Western Canada." The engineers of the Commission are now engaged upon this work.

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### Woods that Show Very Little Shrinkage

All woods from a dry to a seasoned state show a shrinkage, but there art certain varieties in which it is slight. The shrinkage of the same variety of woods varies with the rapidity of the growth of the tree. The shrinkage of various boards from the same tree will vary materially. A quarter-sawed board of any variety shows only small shrinkage, while that of a flat-sawed board follows the breadth of the piece and is much greater.

The assertion has been made that the wood which shows the least amount of shrinkage is the American mulberry, and that specimens of this wood that have been piled a full year show an imperceptible diminution in width or thickness. Black walnut perhaps shows the next least shrinkage of any other domestic wood, and that of good varieties of mahogany is very slight. It is for this reason that the Pullman Company, and makers of high-class cabinet work (especially the manufacturer of the splendid specimens of tables and bureaus that were made nearly one hundred years ago) employed black walnut and mahogany as a base for their veneer work. Even to this day the Pullman Company uses a considerable quantity of black walnut as cores and backing for its high-class mahogany panel work.

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### Trade Twaddle

Mr. Carpenter: "Good morning, Mr. Barber, I have brought my little son to have his hair shingled."

Mr. Barber: "All right, Mr. Carpenter. Have you run out of shingles?"

Mr. Carpenter: "Haw haw! No, I've got the shingles, but I never shingle his roof. I shingle his basement, whenever he needs to have it done."

# Noticed on the Editor's Travels

## First Twin City Furniture Exposition a Big Success—Exhibit an Indication of Twin-City's Vast Industrial Developments

Mr. D. Hibner, speaking at the banquet held at the close of the first furniture exhibit held in Berlin, outlined the progress of its development in Berlin. At present there are thirteen furniture factories in Berlin and five in Waterloo. In 1877 there were two in Berlin and one in Waterloo. The fact that the number had been so largely increased, was an indication of the success of this industry in the past thirty-five years. He was glad to see the large attendance and to see that the exhibition efforts to please the dealers were appreciated. In referring to the furniture salesmen, Mr. Hibner said that a good salesman was the backbone of the furniture trade. His remark that the furniture industry in common with the other interests of Canada,—the best and most noble country in which the white man could locate, would be benefitted by the defeat of reciprocity, was roundly applauded. Mr. Hibner expressed his gratification of the success of the exhibition and looked forward to still greater advancements in the future.

Mr. H. Krug was glad to see that the first exhibition had been so successful, and expressed the hope that those who were in attendance would be back again next year. He was followed by Mr. V. O. Weber who referred to the remarks of the previous speaker and Mr. Kreutzner of Hespeler, Mr. Snyder of Waterloo, Mr. Jacques of Berlin, all of whom lauded the success of the exposition in a few brief remarks.

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The following well-known furniture manufacturers were represented:

### H. Krug Furniture Co., Ltd.

In the development of the furniture industry of Canada, the founder and president of the H. Krug Furniture Company has had a large share. He commenced manufacturing over a quarter of a century ago.

### Baetz Bros. & Company

This firm purchased the business of the Pommer-Cowan Co. on Jan. 1, 1908. The factory was almost completely wiped out by fire on July 6, 1910. The following fall a new brick factory building, 330 feet long and 66 feet wide, was erected. This building is mostly one storey, the firm believing that by having all the manufacturing process on one floor a great deal can be saved in the way of labor, insurance and other expense. Manufacturing was commenced in this new building about April 1, 1911. A specialty is made of manufacturing upholstered dining room chairs and parlor suites exclusively, and a large trade has been built up, owing to the popularity of the designs, and easy prices of these goods.

### Wunder Furniture Manufacturing Co.

It is not long since the Wunder Furniture Manufacturing Co., Ltd., completed an addition to their factory that almost doubled their capacity, but still the demand keeps growing. They have permanent show rooms at their factory, where they have on exhibit a complete line of parlor suites, rockers, and odd chairs in mahogany, and hall furniture and dining chairs in oak. Quality of workmanship and materials and the finish are points that this firm emphasize. Mr. Wunder personally superintends the production of his factory's lines.

### The Berlin Furniture Co., Ltd.

The Berlin Furniture Company's display has attracted immense interest during the past three days. The exhibit is held in the spacious showrooms on the second floor. Between three and four hundred pieces of furniture are here displayed, including the very latest creations in both oak and mahogany. This factory makes a specialty of bedroom suites, hall desks and grandfather clocks. The designs and finishings are particularly attractive, Mr. Jacques being desirous of producing lines to suit the most fastidious tastes. The lines of this factory embrace some strikingly attractive oak pieces.

### At Hibner's

The D. Hibner Furniture Co., Ltd., is one of the oldest established factories in the town, and the manufactures there include every variety of furniture. Mr. D. Hibner has had a wide experience in the manufacture of furniture and his factory enjoys an extensive reputation for the quality and wide range of goods produced. The products of this factory may be found both in the east and west.

### Geo. J. Lippert Table Co.

It is scarcely a year since the Geo. J. Lippert Co. was organized. But they have met with splendid success and had a fine line of tables in the exhibit which attracted a great deal of attention.

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### Stratford Furniture Men Hold Convention

The annual convention of the "Stratford Car-load Combination" met recently, when an informal luncheon and conference of the office staffs and travellers of the furniture men met in the Mansion House to confer on how Stratford-made goods could best be pushed.

The sample rooms of all factories had on exhibition the choicest lines of next season's goods and the convention, the second annual one, is a move of importance to the manufacturing interests and to the city, being one of the best publicity methods for both.

All the wood working factories of the city were included, viz., McLagan's, Stratford Chair Co., Globe-Wernicke, Imperial Rattan Co. and Stratford Manufacturing Co.

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### A Good Sign

The following notice, printed on a large card and hung in a conspicuous place in the office of certain planing mills throughout the country, has proved an excellent medium for bringing about a good understanding between the manufacturer and his customers, and its more general use would prove of great advantage.

### Notice to Customers

"Good and suitable means of access must be provided by you to premises where material is required —otherwise it will be deposited on street in front of the premises at your risk. The teamster must not be

delayed when unloading longer than will be required to dump or jack his load off. You will be expected to furnish sufficient help to unload Trim, Sash, Doors and Frames expeditiously."

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D. Marsh, of the Grimsby planing mills, had a good year in 1911, and looks forward to an even better one in 1912. His firm do a general contracting business and enjoy an excellent planing mill trade.

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The Wilson Planing Mill Co. had to work overtime last fall. This will convey an idea of what a good city St. Catharines is for the woodworker. Some handsome buildings were erected there last year and their finishing called for high-class mill work. Considerable of this was furnished by the Wilson Company.

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Talking with Mr. John Davis who is prominent in the building trade and planing mill business in St. Catharines, we learned that his trade is constantly increasing. Mr. Davis has a good mill and manufactures all the material required by his own building contracts.

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**Unpromising Apprentice**

Plumber—Well, what have ye forgotten?
Apprentice—I ain't forgotten nothin,' boss.
Plumber—Ye ain't? Ye'll never make a plumber.

---

A diplomat is a knocker who can criticize things in a way nobody understands.

**Ever Noticed It?**

The more worthless a man is the more grievances he has, and wishes you to share them with him. The fellow who can't hold down a job beyond the first pay day rates high in this class.

---

A man never knows what he can do until he tries —or whom.

---

Knives out of balance and boxes worn loose account for most of the bad planing. Take off the belts when you test the boxes for looseness.

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The amount of depreciation per annum in the machinery equipment depends so much on the men at the machines that it is sometimes good policy to take something from the depreciation account and apply it to paying higher wages to good men, who will repay it by making the machines last longer and do better work.

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The best way to get a job is not by offering to work for less than some other fellows are working, but by finding a place where you know your talent will be valuable and seeking to impress the boss with this fact.

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Big wrenches about the place are a sort of necessary evil. They are essential to large bolts and nuts, but the evil genius of man is always tempting some one to use a big wrench on a small bolt, and thus harm results on all sides. About the only thing even worse in this connection is the use of the hammer and coldchisel in tightening and loosening nuts.

# Mechanical Skill and Business Sense

By James MacGregor

A person of a philosophical turn of mind can find many interesting things around a wood-working plant, but none more interesting than the study of certain types of men.

We sometimes find a man working at the bench, a trained mechanic who can lay out and finish any kind of a job, no matter how complicated, a man of intelligence, possessing a fund of knowledge concerning every phase of wood work from start to finish. He does not pretend to know, but actually does know more about the manufacturing end of the business than the owner himself or his subordinates in charge. One wonders why such a man sticks at the bench; he seems capable of doing bigger things, yet makes little progress toward what is known as "getting along in the world."

As we come to know him better we usually find some flaw in his make-up that prevents him from using his ability to the best advantage—such shortcomings as a grouchy disposition, a desire to avoid responsibility, or other weaknesses. These might be easily corrected if their effect on his advancement were properly understood. From a close observation of a number of such men, his most serious defect seems to lie in his ability to grasp his commercial value—that is, the "dollar and cent" side of his work; a lack of what may be called the business side of making things. He has devoted his time to learning his lesson, and has learned it well, but it has led him into a rut. His usefulness is confined to narrow limits; his knowledge is of little value to himself, because he does not know how to use it.

On the other hand, it is quite common to see a man of meagre mechanical quilifications accomplish greater things than the man of more profound knowledge; but the former is better balanced than the latter. He possesses that knack of making what little he does know count in a commercial sense. He realizes that employers do not run plants to allow mechanics to display their skill, but to make money; that the factory is a place to make things to sell, and that the most economical production of those things is the aim of every manufacturer. Hence he devotes what little ability he may possess to suggesting and developing better ways of doing things. What he lacks in mechanical skill he gains in shrewdness. His services become more valuable as he covers more ground. To do this he knows he must get away from the bench, and works toward that end.

But we must not confound this man with the other type occasionally met with—the man who tries to bluff his way up by assuming more than he knows. He usually starts in by making needless expensive changes in the mill, to make things go more business-like, and creates quite a fuss for a while. In the course to time, when the results do not seem to justify his actions, something happens. He bumps against the high places for lack of ballast, and lands

nowhere. His nerve is out of all proportion to his ability.

Between these two extremes lies the opportunity for the trained mechanic to make his knowledge count for something. The skilled physician must combine a certain amount of business tact with his professional skill, or remain in obscurity. His commercial sense teaches him that his personal success depends upon the service his skill enables him to render to a greater number of patients. Likewise, if our trained mechanic, accustomed to fill a corner in the mill, will only look up and take a broader view of his surroundings, and see that the factory is a money-making enterprise, in which he plays a very insignificant part, he will realize that his sphere of usefulness must extend over a greater area to be of any considerable value to the business as a whole, or himself personally.

Unfortunately, mechanical proficiency and business sagacity are seldom found in the same individual. Business managers often fail to recognize really meritorious qualities among their men, and few good mechanics realize the money-making possibilities of their skill. They fail to see that to make things better, or cost less is far more important to the manufacturer than a few tight joints or nicely-smoothed surfaces; that not only the ability to make things, and make them right, but to make them pay, is the kind of skill that is most appreciated and best rewarded everywhere.

### Why Bandsaws Break So Frequently

One of the most fruitful sources of annoyance in the average wood-working plant is undoubtedly the bandsaw; especially is this the case when light machines and small saws are used. The heavier variety usually have more care bestowed on them from the first, i.e., choosing a site and fixing them securely down on a solid bed, so they naturally run much steadier and cause less trouble.

Their smaller brethren, however, are often less fortunate in this respect. They are usually found on an upper floor, and that said floor is often a very shaky one, while the only fixing that is possible is a short wood screw in each corner of base. Is it, then, any wonder that bandsaws do break more or less frequently under such trying conditions? I often wonder how such a thin band of steel travels so quickly on an unsteady machine with badly-covered wheels. It certainly speaks well for the quality and temper of the saws, and very little for the managemtnt of any shop to allow such conditions to exist.

Bandsaws are like all other high-speed machines. Rigidity must be obtained and maintained somehow or the other. We cannot always have them on the ground floor, unfortunately. But they can usually be shored up in some way to increase their stability. It is a simple matter to strut them from overhead, or shore them from the floor; it matters little how it is done, so long as it is effective and durable.

The wheels should also receive attention from time to time, to ensure steady running. It is only a small matter to true the wheels up and put them in line, yet it makes all the difference between good and bad work. It is a great mistake a put too much strain on narrow saws. The less you can do with the better will it be for the machine and the saws. Make your machine as steady as possible; have the wheels true. Don't strain the saws, but have them sharp and finely set. Then you can do more work and do it better, and not be troubled with saws breaking continually or running off the wheels or out the cut.

### Taking Care of Shingle Saws

A great deal of experience is necessary to keep shingle saws in shape to have them do good work all the time. A filer not only must know how to fit up, hammer and keep his saws in perfect shape, but he must also thoroughly understand the shingle machines on which the saws are used.

The saw collars must be in perfect shape and should be examined frequently by the filer to see that they are in perfect condition. The collar or saw arbor should also be looked after often and carefully, for if the arbor is out of line or out of true even a very little it affects both the collar and saw, causing them to be out of true, thereby making it impossible to cut smooth shingles. When the shingles are not coming good the filer nearly always looks to the saws for the trouble. Without first examining the collar or arbor he starts in to hammer the saws. Then if the saws do not make better shingles he takes them off the collars and hammers them again. After another trial, and if the shingles are no better, still coming rough, wavey or uneven, the saws are hammered some more; given another trial without improvement and the filer is beginning to think the saws are no good and make this report to the proprietor of the mill. They perhaps will take the matter over and finally decide to examine the collars, where in a great majority of cases they find the cause of the trouble.

It is not claimed that all the trouble in mills where they make rough shingles is on account of the saw collars or saw arbors being out of true, for in a great many instances the teeth in the saws have been allowed to get into such condition that they will make poor shingles. It is necessary to keep the teeth of uniform shape and equal distance apart; then again the hook in the teeth must not be changed from the angle of the hook in the saws as they come from the makers.

Too much hook does not improve the running qualities of the saws and too little hook will cause trouble on account of the saws not cutting the wood as they should.

Filers should watch the shape of the teeth more carefully and watch their collars more closely to see that they are always in perfect condition. If these two points are carefully watched, and the saws are properly ground and made of good steel and tempered with the right degree of hardness, then tensioned in perfect shape there should be no trouble about the saws making first-class shingles.

Saws sharpened on automatic machines usually make better shingles than saws sharpened on hand gummers. The automatic machines keep the hook in the tooth on the right angle, and teeth uniform in shape and space, as well as keep the saws perfectly round. These are the essential points in the sharpening process of shingle saws.

### Largest Electric Motor

The largest electric motor in the world is now being made in Stafford, England. It will have a capacity of 10,000 horse-power and will weigh nearly 200 tons. A 920 volt current will supply it. The commutator will be 12 feet in diameter. The motor will be used for driving a steel rolling mill.

### Utilization of Sound Wormy Chestnut

Sound wormy chestnut is without question the wood most universally used for core stock or to veneer on. Because of its lightness in weight, good width and low price, it has gained favor with the consuming trade, and each year we see the demand increase, and this wood supplant other lumber. Casket manufacturers are the largest consumers of wormy chestnut, with piano factories a close second and furniture manufacturers third.

It is interesting to follow the advance in grade of this lumber. Prior to the panic of 1908, West Virginia chestnut was not well known to the consumers of Chicago and the West. Up to this time the principal market for the West Virginia mills had been New York and the eastern states. Vast quantities of wormy chestnut accumulated during the panic and the millmen came to the western market to sell this lumber. The widths, long lengths and good quality of the chestnut were so superior to the stock they were accustomed to, that now it is found hard to dispose of anything but West Virginia stock.

The grade of wormy chestnut has changed wonderfully within a very few years. Four or five years ago log run stock sold readily enough, the only restriction being that lumber be free from heart and shake. Soon the call was for No. 1 common and better, all No. 2 to be thrown out, until to-day the best mills put up their stock No. 1 common and better 6 in. and wider.

It is regretted that the price of sound wormy chestnut has not advanced with the grade. Little more is obtained for this high-grade stock than was obtained a few years back for the narrow, shaky grade put up at that time. This is no doubt due to the over-production of sound wormy stock. Whoever heart of a shortage of wormy chestnut? The mills are generally so overloaded that they are willing to put up any reasonable grade that the consumer may ask for.

During the last few years a specialty has been made of sound wormy chestnut. The stock is used by so many manufacturers, and in such large quastities that the business is found profitable by many jobbers. Complaints now are few, as the grade put up is better generally than is demanded by the grading rules.

As the forest land to be exploited is in close proximity to a railway, thus giving facilities for conveying the timber to the seaboard, it would appear that the company will be in a position to place the timber on the market at a reasonable cost, and, such being the case (a most important point in the introduction of new woods), there is a good prospect of their products finding a satisfactory market here.

Many of these woods are well fitted for the cabinet trades, for carriage builders, for the turnery industries, for stick making and other manufacturers, others by durability and strength being likely to be used in larger constructive work, and it is believed that an appreciative market will be found here for most of the timbers when they have been properly introduced.

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### Gas Engines are Safe

Among some people there is still a popular superstition that an engine which "explodes" every other revolution of the crank shaft is dangerous. "Explosion" in connection with the action of the gas engine has been overworked until some people would rather work ten hours a day for the rest of their natural life than have such a machine on their premises. The fact is that with the possible exception of a wind mill, the gas engine is the safest of all motive powers, with no apologies to the horse. Gasoline tanks do sometimes "blow up," so do dangerous stoves, steam boilers and kerosene lamps, but all the gas engines that have ever "exploded," in the popular conception of the word, could be counted on ten fingers. A gas engine is a highly-developed piece of automatic machinery and can be made practically "fool-proof," while accidents are almost invariably due to ignorance or carelessness.

The point we want to make is this: The only really dangerous thing about a gas engine is the human element, and over that the designer has no control. Matches are pretty dangerous playthings for a baby, but no grown man hesitates about carrying around a pocketful of them.

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### Pigeons Stopped Steel Workers

Pigeons were the cause of a delay of more than an hour in getting a large steel girder into place in a skycraper that is being erected in New York city. The girder was being hoisted, perfectly balanced by the derrick, when a flock of pigeons alighted on one end causing the girder to tilt. It took the workmen more than an hour to get the girder on a level again.

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During the investigation at Rome of the Domus Flavia, on the Palatine, the pavement of the dining hall at Domitian, measuring 1,000 square metres in area, has been discovered practically intact. It is the richest of all the pavements belonging to the Imperial palaces of the first century, being of Oriental granite with a border of Numidian marble and other African stones. Interesting evidence of the heating arrangements of the time is provided by the raising of the pavement from the earth so as to allow of the introduction of hot air from a special heating furnace.

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### Getting the Most Out of Wood-working Machinery

The relative output of various types of metal working machines is to-day being determined with great care in many shops, the relation of feed and cutting speed, of shape and material of cutting tools for maximum output, are matters of record. In the power plant the performance of engines and boilers is known and the steam making values of different coals are establishde in terms of their cost of a horse power.

But what have we in the wood-working industry to compare with this detail knowledge? In how many mills is there any evidence in the case except the personal opinion of some individual? When we buy the best machine that can be bought do we treat it with any more intelligence than its cheap and inefficient brother? In a word, do we give it a chance to do its best,

Such queries may well be pondered by the mill manager and superintendent, for in all truth a host of the highest grade machines are to-day operating below their maximum capacity in quantity and quality simply because no one has realized how much more they can do or, realizing this, has not had the mechanical knowledge or the personal interest to make them do it.

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You would doubtless be surprised if you knew what the people you sneer at think of you—if they ever give you a thought.

### Average Cost of Setting Up

Planing mill men who keep careful record of cost detail figure that on an average every change or setting up of a machine costs 50 cents. Simple changes can be made on some machines in half a minute, but sometimes where there are cutters to be ground for mouldings and other changes, that may take half a day. So it is pretty generally agreed that the average cost of machine changing means something like fifty cents.

### A Beaver's Day's Work

A young beaver in Regent's park gardens, London, was once placed at work upon a tree twelve feet long and two feet six inches thick just as the town clocks sounded the hour of noon. The beaver began by barking the tree a foot above the ground. That done, he attacked the wood. He worked hard, alternating his labor with dips in his bathing pond. He bathed and labored alternately until 4 o'clock in the afternoon, when he ate his supper of bread and carrots and paddled about in his pond until half-past 5 o'clock. Ten minutes later, when only on inch of the tree's diameter remained intact, be bore upon his work, and the tree fell. Before it fell the beaver ran as men run when they have fired a blast. Then as the tree lay on the ground he portioned it out mentally and again began to gnaw. He worked at intervals all night, cut the log in three parts, rolled two of the portions into the water and reserved the other third for his permanent shelter. The work done, he took a bath.

### Saws Without Teeth

Ordinarily speaking a saw without teeth would be of little or no use, but for certain mechanical purposes it has been found that even a circular disc of thin iron, without teeth, can be used to cut substances very much harder than the iron.

A circular saw of iron about eight inches in diameter, turning at the rate of 10 meters per second, will be torn or cut by a steel tool, but when that speed has been increased to something like 25 meters per second, the same steel will have no effect on the iron disc, and when the speed is still increased to about 60 meters, much harder materials than steel can be cut without showing as much as a mark on the edge of the iron disc.

Such saws are not a new discovery, as they were used nearly a century ago, but in some of the modern factories, and especially in some of the shops where great steel pieces have to be cut very accurately the toothless iron saw is very useful. Its action is somewhat similar to the cutting of very hard substances by means of a stream of sand, which nevertheless will not even injure the hand of the workman if it should happen to be blown against it.

### Getting a Better Viewpoint

"I never realized how many ideas there were in other factories which could be applied to my work," said the manager of an eastern envelope company, "until I took a trip through different factories in the west. I found new plans, new suggestions and new ways of doing the same thing. My trip lasted two months and during that time I got an altogether different viewpoint of my own work."

This manager's experience is a common one to every man who takes a trip through different industrial establishments and talks with men whose experiences are similar to his own. Another manager even went so far as to say that there ought to be an association of factory managers, there was so much in common in the different plants. He believes that factory men might come together with as much profit as any association of mechanical, electrical or civil engineers.

Every man in charge of manufacturing has details of work to attend to which make it difficult for him to get away from his own plant, but one of the advantages of leaving a factory is to be found in learning how to turn over detailed work to some other man.

While taking a trip through another man's factory, a conversation with him may suggest a new idea. Often times the stay-at-home factory man overlooked things in his own plant and his attention is called to them only by some extraordinary happening.

### Berlin After More Factories

At the inaugural meeting of the Berlin town council Mayor Schmaiz said: "In these growing times it is of importance that the name of the Town of Berlin—soon to be a city—be kept well advertised. Other places are securing new industries and we should receive our share as well. In order to accomplish this effectively, the appointment of a 'publicity' man should be considered and possibly a committee of the town council could be selected to deal with all matters pertaining to the proper advertising of Berlin and the securing for it of more factories."

### McKee & Sons' Planing Mill Taken Over by R. A. Rastall & Co.

The planing mill and sash and door factory on east Queen street, Toronto, long operated by McKee & Son, was taken over on the first of this month by R. A. Rastall & Company. Mr. Rastall is an experienced mill man and formerly carried on business in Brantford, Ont. The new firm are running the plant full time and employ at the present about thirty men. Their facilities for manufacturing sash and doors, interior finish, etc., are the best. The lumber yard is very extensive and well stocked.

### The Use of Time

Man's most wicked waste is a waste of time. It isn't how much time a man uses which is important, but how much he uses the time he has. History is filled with incidents of men who have become great from the right use of their so-called "spare" time. The right use of time implies the art of mastering the subject in hand—getting out of every moment all there is in it.

Ted Robinson of the Cleveland Leader takes a fall out of the language in the following style:

The stranger stopped at the sash, door and blind factory.

"Is the boss in?" he asked.

"Why, what did you want to see him about?" countered the clerk.

"I want to buy some doors."

"Well, he's in, but he's out of doors."

# Hardening, Tempering and Annealing

The things one can pick up, says a writer in the Mechanical World, in reference to hardening, tempering and annealing, especially when one is given to knocking about the country, very often come in useful. The following have been collected over a space of several years, and have been found not wanting on many occasions. Some of them may not be new to some readers, and they are intended chiefly for the younger men who have not had experience.

On my present job I have many times to drill in order to save time and expense, hardened blanking punches. Try as I would, with whatever mixtures or lubricants, the drill lost its edge. However, I tried a plan, which may be explained as follows: Get an earthen dish, and fill it, say, to the depth of 1 in. with sulphuric acid. Then heat up the drill to cherry-red, dip to the depth required in the acid, then, taking out, plunge the drill in the dip tank or bosh. The effect of the acid can be weakened by the addition of water. Also I have found that by sprinkling a little cyanide of potassium on the cutting edges of the drill when cherry-red, and just before plunging, the hardness of the drill is increased.

If one has a reamer to harden, and that, too, without the opportunity of annealing it before hardening, and after machining, the following substitute for annealing can be used. Give two or three sharp raps on the end of the reamer, not hard enough to burr up the end; this will toke out the twist put in by machining. Hardening can then be proceeded with, with less fear of warping, due to the twist.

Binding long pieces of slender work, such as hard taper reamers and the like, with soft iron or brass wire along their length in the form of a spiral spring, will prevent their warping when hardened.

The following is a method that is worth trying when hardening thin sheet-steel pieces, say 6 by 2 by 1-16 in., or any similar pieces; shear blades, if not overlarge, may also be treated the same way. Take, for the thin stock, pieces of tissue paper about twice the width of the stock, and work and float them on the surface of the water in the dip tank a few minutes before they are required. When the stock is ready to plunge, drop them, one on each piece of paper; the paper will sink along with the work, and to a large extent prevent warping of the stock. Use heavier paper according to the weight of the stock. For those who use the brine bath an excellent gauge will be found in a raw potato. Enough salt is added to the water until the potato floats, when the bath is right.

It sometimes happens that one is called upon (especially in a strange shop) to harden steel of which the carbon percentage is unknown. Under these circumstances use the following bath: Dissolve enough common salt to float a raw potato; add 1 quart of sulphuric acid, 1 lb. of mercuric chloride (corrosive sublimate) to every 15 gallons of brine. The steel can be heated to a lower heat than ordinarily used, and hardened in the bath without fear of fracturing.

Users of high-speed steel may be dismayed to find that the tool does not stand up to the work as it should. Take the tool over to the fire and heat up very gradually to a white heat, take out and sprinkle a little cyanide of potassium on the point, and allow it to sizzle for 15 to 20 seconds. Place in the air blast or plunge, according to maker's advice, to harden.

It is often required to caseharden temporarily templets or jigs, etc., of mild steel, and this without going to the trouble to pack-harden. Try the following: Take 1 part sal-ammoniac and 3 parts prussiate of potash. Heat up the article to a cherry-red, cover up the article in the mixture, and when a dull red plunge into the bosh. Take out and reheat to a bright red, and plunge again. On taking out it will be found to have a fairly good "case." Whale and similar oils have a nasty way of sticking on to the work which has been left in some time after hardening or tempering. Smearing the work with gasoline effectually cleans all burnt or sticky oil off the work.

A very handy and cheap method of annealing steel is to cover the steel with fireclay and heat up to red heat. Then allow the whole to cool at night in the forge.

Another method which I sometimes employ, if necessary, is to heat up the stock evenly to a dull red. Allow all signs of red to disappear when held in dark place, then plunge in clear water, take out, and again heat up slowly and evenly to a dull red. Then allow to cool out of itself. This is very handy for a "rush" job.

High-speed steel can be made fairly easy to work, if, when cut off to suitable lengths, it is packed into a piece of pipe, having one end sealed. Place a suitable number of pieces into the pipe, and pack around and about them powdered charcoal. Lute up the open end with fireclay. Put up the whole into the furnace or forge fire and heat up to a dull red, keep it at that until the whole lot is soaked through; then allow it to cool off gradually. Open out when entirely cold.

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### The Weight of Iron

Cast iron weighs .26 lb. per cubic inch; wrought iron, .278; steel, .283; copper, .32; brass, .3. A yard of wrought iron one inch square weighs 10 pounds. Wrought iron weighs 480 lbs. per cubic foot. For steel add 2 per cent.

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### The Durability of Cast Iron

The cast iron is not now chosen for the working parts of machines, it has been known to show great durability when so used. In an instance lately brought to notice, a cast iron crank-shaft of an engine built in 1850, had, in 1910, made 187,000,000 revolutions, and the stress on the neck at the beginning of each stroke had ranged from 2,050 to 3,650 pounds per square inch.

In another instance a cast iron gudgeon, put to use before 1838, has continued in service without fracture. It has withstood at least 750,000,000 applications of a stress of 1,500 to 1,700 pounds per square inch.

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High-powered men like high powered engines do their work without making any noise.

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The careless use of matches last year is known to have been the cause of 1,089 fires out of 3,875 fires of known origin in Chicago alone.

### Nothing Like Leather

For over twelve months now a road made principally of leather has been in use at Handsworth, Birmingham, and shows practically no signs of wear. It is another example of the elimination of that commercial bugbear, "the waste product," for until some ingenious person hit upon the idea of the leather road practically no use had been discovered for the leather waste from which it is made. The waste leather was shredded until it virtually became a pulp. It was then treated with bitumen and tar and then laid in the usual way. The road is claimed to have many great advantages. It creates little or no dust, gives considerable wear, is resilent and silent, and gives a good grip for motor tires and similar objects. It is a comfortable material for horses to tread on, and the heaviest vehicles that have so far passed over it have made no impression on it.

### Timber Mining

A curious source of wealth is found in the wood mines of Upper Tonkin. The wood originally was a pine forest, which the earth wallowed in some cataclysm. Some of the trees are a yard in diameter. They lie in a slanting direction and in sandy soils, which cover them to a depth of about eight yards. As the top branches are well preserved, it is thought the geological convulsion which buried them cannot be of a very great antiquity. The wood furnished by these timber mines is imperishable, and the Chinese gladly buy it for coffins.

Reinforced concrete railway sleepers with asbestos fibres soaked in water and mixed thoroughly with cement is one of the parts that have been used on Bavarian railways, and in the first five months of service showed no defects.

### Color Sense Shows Intelligence

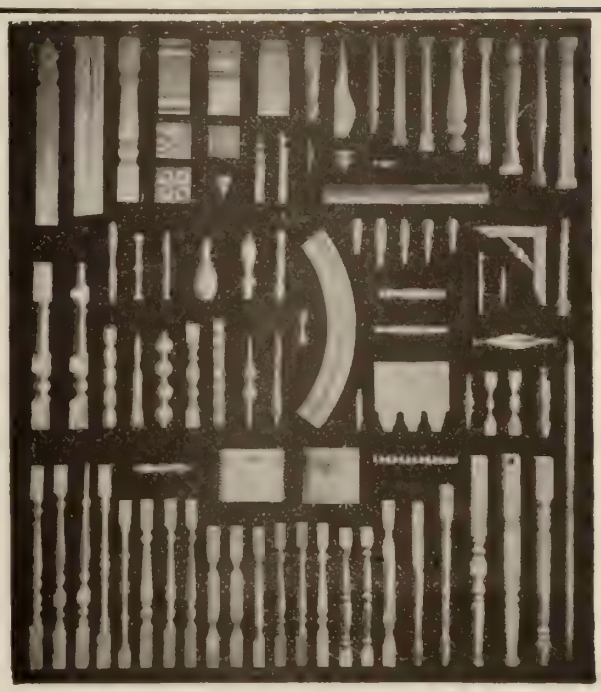
Interesting experiments have been carried on by Dr. Warburg in the schools of Cologne, Germany, on the subject of distinguishing between different colors. He found that the power of telling one color or shade from another was much more strongly developed in girls than in boys. He also found that the more intelligent the pupils were the better color sense they had.

### A Floor that Turns Over

The floor in the Apollo theatre in Paris is reversible, one side being made for dancing, the other being the useful inclined floor equipped with the folding seats of a theatre auditorium. The floor is mounted on horizontal axis on which it revolves. It is built on a framework of steel girders, has an area of 2.500 square feet and weighs 100 tons. The axis, which is parallel to the front of the stage, is not in the middle of the thickness of the floor, but nearer to the seating surface than to the dancing surface. The floor swings through an excavation over thirty feet in depth.
ment Age.

### To Make A Brazed Joint

To make a good clean brazed joint, the metal should be carefully cleaned, heated to a bright red, and then covered with the flux of the following formula: One pound of boric acid, four ounces of pulverized chlorite of potash, and three ounces of carbonate of iron.

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# From Coast to Coast

### Young Man Seriously Injured at Langmuir's Manufacturing Co's. Works, Toronto

William Hay, 90 Mitchell Ave., Toronto, met with a serious accident while oiling a machine at the Langmuir Manufacturing Company's works, King and Niagara streets, and he now lies in Grace Hospital in an unconscious condition, with a badly fractured arm.

Hay is 17 years of age, and he was engaged in the sawmill department "pulling off" from a circular saw. When anything got hot about the brasses or machinery it was Hay's duty to lubricate with oil. He was performing this task when the accident happened, but no one seems to know exactly how it took place. It is surmised that the oil can which he used had come in contact with the saw as a piece had been torn right out of it. Whether it was the saw or the wheels of the machinery at the side that caused Hay's injuries is not known.

### Bad Accident to Lumberjack

With his skull crushed in by a falling tree, Peter Charmineau, a French Canadian lumberjack, was brought to Toronto from Wabauoaiwai Falls, on the Metagami rever, to the Toronto General Hospital. He had misjudged the direction of a tree he was felling.

Comrades brought him through the bush on a rough sled to Porcupine, but local doctors being unable to aid him he was shipped to Toronto. At the hospital a desperate and unusual experiment was tried. His skull was cut into and the piece of bone pressing upon the brain was pushed outward into normal shape.

### Forestry in Europe

The productive forest area in 1902 on the Grand Duchy of Hesse in Europe amounted to 182,263 acres. In general the standing timber is composed of sixty-nine per cent. hardwood and thirty-ont per cent. coniferous forest. The fir ranks first among the coniferous species. The total yield of lumber in 1908 was 4,575,000 cubic feet. Refuse in so far as it is not suitable for lighter lumber, such as laths or for pulp, is used for firewood. The expenditures for salaries, forest cultivation and road building amounted to approximately $754,000, and the total gross income (from lumber and firewood) was $1,161,931. The capital represented by the forests ($52,665,354) brought interest accordingly at 2.21 per cent. Where intensive forestry of this kind is practised, forest fires are unknown. Sufficient money spent on Canadian Forest Reserves would greatly reduce the fire danger, maintain an adequate lumber supply for the country and in time become a source of revenue to the Government.

### Box Lumber in Canada—1910

The reported consumption of lumber for boxes and shooks in Canada during 1910 was over one hundred and fifty-eight million feet, valued at two million two hundred and seventy-five thousand dollars. These statistics have been compiled by the Forestry Branch of the Department of the Interior from reports received from one hundred and two box factories, over one-half of which are in Quebec. Seventy million feet of lumber or forty-five per cent. of the total was used in Quebec. Ontario used sixty million feet or thirty-eight per cent. of the total and the remainder was used in the provinces of New Brunswick, British Columbia, Manitoba and Nova Scotia. Pine, the chief species used in Ontario formed forty-five per cent. of the total box lumber and cost only $13.93 per thousand. This comparatively low price for pine, indicates that with this more than with any other species, mill waste and cull lumber is being used in the manufacture of boxes. Spruce in 1910 was used in every province in which boxes were made and formed forty-one per cent. of the total. The cost was $13.83 per thousand or twenty-eight cents more than the average mill run price, so that manufacturers using spruce demand the finest quality. The remaining fourteen per ctnt. of the total was comprised of fourteen other woods, of which hemlock, basswood and balsam were the chief. The most expensive box-wood used was a million and a half feet of Douglas fir at $23.00 per thousand in British Columbia. Balsam fir used in the three eastern provinces was the cheapest box-wood reported in 1910 at $8.94 per thousand. It is a wood light in color, tasteless, fairly strong and its use in the manufacture of boxes should be encouraged.

### Many Immigrants Reach Canada

The Department of the Interior has compiled the figures for the immigration for the year, which are practically complete. The total is 351,595, as compared with 311,084 in 1910.

Up to Dec. 1st the total was 339,714. The December figures are placed at 11,881. The British immigration shows a particularly large increase, reaching 141,-835, in comparison with 123,013 for the year 1910.

The American immigration increased some 4,000, the figures this year, December excepted, being 125,-399.

The Continental immigration jumped 6,000 totalling this year 72,478.

### New Factory for Stratford

The full returns and later computations show that the by-law to loan the Paul Bemwitz Co. $10,000 to assist in establishing a manufactury of piano accessories at Stratford, Ont., was carried by a majorityof of 23 over the requisite three-fifths vote. This by-law was originally reported as having been defeated.

### Malcolm Furniture Company to Start Business in Listowel

The Andrew Malcolm Furniture Co., Kincardine, Ont., have been granted ten years' exemption from taxes and free water on assuming the responsibilities of the Listowel Furniture Co. and undertaking to work the factory to its full capacity. Only four voted against and four hundred and fifty-five in its favor, being one hundred more than the required majority.

### Drowned in Spanish River

Word was brought to Pogamasing, Ont., by an Indian named John Spanial, that James King, who was in charge of Messrs. J. and T. Charlton's lumber camps at Munroe Siding, two and a half miles west of here was drowned in the Spanish River. The

body will not likely be recovered before spring owing to the ice.

Martin Power, a prominent lumberdealer, is dead at Montreal, aged 65.

### Big Gas Merger

It was stated that $2,500,000 is the amount involved in the deal by which a large American Gas and Coke concern will shortly take over the Hamilton Gas Light Company and the Ontario Pipe Line Company, giving it control of the natural and artificial gas situation at Hamilton. The Manufacturers Gas Company will likely to taken in later too. The new company will erect a mammoth new plant here. It has secured control of several of the best natural gas fields. In addition to handling gas, it will carry on an immense coke business.

### Fell Across Circular Saw

Eddie Hoskins, a nine-year-old boy, received fatal injuries by falling across the circular saw of a wood-sawing machine at Birch's Crossing, near Elmvale, Ont. It is supposed the boy had slipped on the snow, and fallen on the quickly-revolving saw, or that his coat became entangled in the wood and that he was drawn on the saw. His arm was partly severed, and he had other severe injuries. The lad died the same evening from the shock.

### Want a Shingle Duty

Vancouver shingle manufacturers have petitioned the Federal Government to impose an import duty on shingles from the United States. Shingles are now imported duty free and forty million came in last year, chiefly to the eastern states. Eastern concerns have been practically driven out of the United States, because of the duty of fifty cents per thousand imposed by the United States.

### Big Sum Involved in Lumber Deal

One of the biggest lumber and timber deals consummated for some time in Fort Frances district is reported closed, whereby the Hines Lumber company, of which the Weyerhaustrs are the principal factors, has purchased from the Shevlin-Clarke company the large new sawmill built at Fort Frances, Ont., last summer together with four timber berths in the Quetito territory on Hunters' Island. it has been known for several days that a deal was on, three of the Weyerhausers having visited here for the purpose of inspecting the mill property. Just how much was involved in the transaction is not known, but it will run into hundreds of thousands. It is said that the Hines people will movt one of their large mills to Wisconsin and place it alongside of the one purchased from the Shevlin-Clarke company, thus doubling the capacity of the plant here and employing 600 men. The Hines company will also put in a hot pond and run the mills the year round.

### Fire in St. Mary's Planing Mill

The planing mill owned by George Brown & Company, of St. Mary's, Ont., was gutted by fire.

The machinery and contents were entirely destroyed and the walls of the building damaged.

The damage is estimated at between $8,000 and $10,000 partly covered by insurance.

The origin of the fire is unknown.

### Great West Lumber Co., Red Deer, Alta.

Mr. J. W. Hey, who has been secretary-treasurer of the Great West Lumber Company, has been appointed business manager, and is now hard at work in charge of the operations of the company which are on a much extended scale this winter. At the present time some three hundred and fifty men are busy in the bush, getting out timber, and a steam log hauler equal to 15 to 18 four-horse teams, has been purchased to assist in getting the logs to the river bank. The cut will run from 10,000,000 to 12,000,000 feet. A new Cross compound engine of 350 horse power is being added to the plant, the present engine being only 125 horse power.

Smallpox is reported from several lumber and construction camps in Quebec.

### Bad Fire Burns Big Lumber Yard

The sheds and lumber on the west side of the Coast Lumber Company yards of Regina was licked up by flames. The damage is estimated to be in the neighborhood of $5,000, which is fully covered by insurance.

### Aylmer Sets Out Timber Limits

After six months' discussion the Aylmer Council decided to prohibit the piling of lumber inside the town limits.

For the last five years the residents of Aylmer have lived in constant terror of the large lumber yards inside the town catching fire, which would mean, if the wind was high, the total destruction of the town.

Last summer the lumber yards were burned and it was only by the good work of the Ottawa firemen that the town was saved.

### Lumber Scaler Stricken on Trail and Died in Camp

John Yuill, Ontario Government lumber scaler, whose home is in Arnprior, died very suddenly at the lumber camp, eight miles from Jocko Station, on the Temiskaming and Northern Ontario Railway. Upon leaving the train at Jocko, he complained of not feeling well, but insisted on walking through Mills to the camp. He became worse on the trail and did not reach the camp for seven hours, death coming shortly after. He was about forty years of age, and well known and popular in the North country.

During the past ten months, according to the figures of Building Inspector McInnis' returns, the value of buildings in Prince Rupert for which permits were issued is just about $230,000.

### Shutting Down Early

On account of the dumping of Washington lumber on the prairie markets, a number of the mountain mills in British Columbia are shutting down for the winter earlier than usual.

No matter how well I may do a thing to-day, there will be a betttr way of doing that thing to-morrow.

# Building News

### Montreal Building Active

According to facts collected by Mr. H. H. Lauer, secretary of the Builders' Exchange, for presentation at their annual meeting on Monday, Jan. 22, Montreal's building operations during the past year were very much more extended than could be judged from the figures issued by the civic building department. In fact, where the civic figures for Montreal showed building work to the extent of $14,561,-481, Mr. Lauer's estimates, prepared from authentic information as to real values, show a total of $25,820,-144 for Greater Montreal.

While these figures are nearly two million dollars lower than those for last year, they are regarded as extremely satisfactory, since last year's figures were swollen by the taking out of permits for work amounting to several millions of dollars, while the present year has not yet been marked by any such immense expenditure.

### Guelph Had Good Year

The year just closed far exceeded that of any previous year in the history of Guelph, Ont, so far as the erection of new buildings is concerned, the grand total for 1911 being in the neighborhood of $600,000. The prospects for 1912 are brighter than ever, with the probabilities that at least three-quarters of a million dollars in new buildings will be erected.

### Had Building Boom

Although the announcement was made some time ago that the building operations in Chatham, Ont., would aggregate an expenditure for 1911 of $175,000, the annual report of the industrial committee shows that the amount will be far in excess of these figures and will total in the neighborhood of $233,000.

### Record Building Year

During the past year 531 building permits were issued by the City Engineer's Department, Brantford, Ont., which constitutes a record for this city as the largest number issued previous to 1911 was 377.

### Likely to be Busy

From the present outlook there will be a great deal of building in Kingston next season. One architect, on Friday, said that he was preparing plans for three or four residences, most of which will cost around $4,000. With the absence of labor troubles the coming season ought to be a busy one in the building trade.

### Toronto Building Record for 1911

The report of the city architect shows that the building permits for 1911 amounted to $24,374,539. This represents over $3,000,000 more than the value of the permits in 1910.

The figures show a decided increase in the number and the value of the building permits of 1911 over 1910. The number of permits issued last year was 7896, while in 1910 there were 6204. There were 9869 new buildings erected last year as compared with 8499 in 1910.

For the month of December the approximate value of the buildings was $1,791,032, and in December, 1910 the figures were $1,353,265. There were 505 permits issued in December, 1911, while in the same month, 1910, there were 407 issued.

### Fort William Makes a Record in Building Permits in 1911

Building permits for the past month totalled $589,-400, and this sum added to the preceding eleven months, making $2,488,610, tops the record for Fort William. This was not looked for at the middle of the year, but the progress made at the last far exceeded anything that had happened at a similar season in past years. The number of residences for which permits were asked was not so large as last year, but industrial permits far exceeded those of any previous yer.

### Building Boom Expected in Lethbridge, Alta.

Optimistic opinions of the building prospects for the new year are expressed by all the local contractors who state that 1912 should see the greatest building activity ever known in the city. Several large new blocks are contemplated, and with the spring months should come a building boom of large proportions. Already there is close to a million dollars worth of new buildings in sight.

### Brantford to Have Small-sized Boom During 1912

Brantford expects a big building boom in 1912, and the indications are that this will be the busiest building year in the history of the telephone city. Among the buildings which will be built this year are:—Young Men's Christian Association, $100,000; hospital, $100,000; Nurses Home, $20,000; Holmedale School, $65,000; Barber & Ellis factory, $75,000; Brantford Oven and Rack Company. In addition there are prospects for a new $200,000 Government building and numerous factory enlargements. The Grand Trunk Railroad will also spend close to $100,000 on a new entrance for the Brantford and Tillsonburg branch.

### Canada Failures Show a Decrease

Commercial failures in Canada and Newfoundland in 1911, as reported to Bradstreet's, were fewer in number and of smaller financial importance than in any year since 1907. The number of failures was about 4 per cent. less in 1911 than in 1910, and the liabilities were less by over 21 per cent.

Some people seem to think they are so far above the rest of us that is positively makes them dizzy.

Luck consists of getting what some other fellow wants.

### No Need to Hurry

A countryman who had been henpecked all his life was about to die. His wife felt it her duty to offer him such consolation as she might and said, "John, you are about to go, but I will follow you." "I suppore so Mandy," said the old man meekly, "but so far as I am concerned you don't need to be in any hurry about it."

# BUYER'S DIRECTORY

**AUTOMATIC DOVETAIL GLUE JOINTER**
Canadian Linderman Machine Co., Ltd., Woodstock, Ont.

**BABBITT METALS.**
Shurly Dietrich Co., Ltd., Galt, Ont.
Fay & Egan Co., Cincinnati, O.
Canada Metal Co., Ltd., Toronto.

**BALUSTER LATHES.**
C. Mattison Machine Works, Beliot, Wis.
Ober Mfg. Co., Chagrin Falls, O.
Baxter D. Whitney & Son, Winchendon, Mass.

**BAND SAW FILING MACHINERY.**
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
Shurly Dietrich Co., Ltd., Galt, Ont.
Fay & Egan Co., Cincinnati, Ohio.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

**BAND SAWS.**
Canada Machinery Corporation, Ltd., Galt, Ont.
Shurly Dietrich Co., Ltd., Galt, Ont.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
R. H. Smith Co., Ltd., St. Catharines, Ont.

**BAND SAW MACHINERY.**
Canada Machinery Corporation, Ltd., Galt, Ont.
Mussens, Ltd., Montreal.
Canada Machinery Agency, Montreal.
Berlin Machine Works, Ltd., Hamilton, Ont.
Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

**BAND SAW MILLS.**
Berlin Machine Works, Ltd., Hamilton. Ont.
Canada Machinery Agency, Monteral.
Mussens, Ltd., Montreal.
Fay & Egan Co., Cincinnati, O.

**BAND SAW STRETCHERS.**
Fay & Egan Co., Cincinnati, O.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

**BENDING MACHINES.**
Mussens, Ltd., Montreal.
Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.

**BELTING.**
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Sadler & Haworth, Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
H. W. Petrie, Ltd., Toronto.

**BELTS (Endless).**
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Sadler & Haworth, Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt.
H. W. Petrie, Ltd., Toronto.

**BELT CEMENT.**
Sadler & Haworth, Montreal.

**BELT FASTENERS.**
Sadler & Haworth, Montreal.

**BELT DRESSING.**
Sadler & Haworth, Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt.

**BLOWERS.**
Mussens, Ltd., Montreal.
Sheldons, Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

**BLOW PIPING.**
Sheldons, Ltd., Galt, Ont.

**BOILERS.**
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

**BORING MACHINES.**
Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
J. M. Nash, Milwaukee, Wis.
Valley City Machine Works, Grand Rapids, Mich.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

**BOX MAKERS' MACHINERY.**
Canada Machinery Corporation, Ltd., Galt, Ont.
Canadian Linderman Co., Ltd.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Baxter D. Whitney & Son, Winchendon, Mass.

**BROKEN CASTINGS BRAZED — MACHINIST AND DIE MAKER.**
W. H. Dunn, 1892 Queen St. West, Toronto

**CABINET PLANERS.**
Canada Machinery Corporation, Ltd., Galt, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Valley City Machine Works, Grand Rapids, Mich.
Baxter D. Whitney & Son, Winchendon, Mass.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

**CARS (transfer).**
Sheldons, Ltd., Galt, Ont.

**CARVING MACHINES.**
Canada Machinery Corporation, Ltd., Galt, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler. Ont.
Valley City Machien Works, Grand Rapids, Mich.

**CHISELS.**
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.

**CIRCULAR SAW MILLS.**
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

**CHAINS (Silent).**
Jones & Glassco, Montreal.

**CLAMPS (Chain, Carpenter, Cabinet, Pattern Makers, Bench, Mitre, Piling, Mounted and Rotary Wheel).**
Black Bros. Machinery Co., Mindota, Ill.
J. A. Fay & Egan Co., Cincinnati, O.

**CLAMPS (Saw).**
Shurly Dietrich Co., Ltd., Galt, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

**CLUTCHES.**
J. A. Fay & Egan Co., Cincinnati, O.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

**COLUMN CLAMPS.**
Black Bros. Machinery Co., Mendota, Ill.

**COLUMN MACHINERY.**
J. A. Fay & Egan Co., Cincinnati, O.
C. Mattison Machine Works, Beloit, Wis.

**CORE BOX MACHINES.**
J. A. Fay & Egan Co., Cincinnati, O.
E. & B. Holmes Machinery Co., Buffalo, N.Y.

**CUT-OFF SAWS.**
Canada Machinery Corporation, Ltd., Galt, Ont.
Shurly Dietrich Co., Ltd., Galt, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Simonds Canada Saw Co., Montreal.
R. H. Smith C., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

**CUTTER HEADS.**
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Samuel J. Shimer & Sons, Mitton, Pa.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

**DADO HEADS.**
C. Mattison Machine Works, Beloit, Wis.

**DIEMAKERS & MACHINISTS**
W. H. Dunne, Toronto.

**DISK GRINDERS.**
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.

**DOGS (Saw Mill).**
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.

**DOVETAILING MACHINES.**
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Canadian Linderman Machine Co. Ltd., Woodstock, Ont.
J. A. Fay & Egan Co., Cincinnati, O.

**DOWEL MACHINES.**
Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Valley City Machine Works, Grand Rapids, Mich.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

**DRILLS (Automatic Hand).**
North Bros. Mfg. Co., Philadelphia, Pa.

**DRILLS (Reciprocating).**
North Bros. Mfg. Co., Philadelphia, Pa.

**DRILLS (Breast).**
North Bros. Mfg. Co., Philadelphia, Pa.

**DRYING MACHINERY.**
Canada Machinery Agency, Montreal.
Sheldons, Ltd., Galt, Ont.

**DRY KILNS.**
Canada Machinery Agency, Montreal.
Sheldons, Ltd., Galt, Ont.

**DUST COLLECTORS.**
Canada Machinery Agency, Montreal.
Sheldons, Ltd., Galt, Ont.

**DUST SEPARATORS.**
Canada Machinery Agency, Montreal.
Sheldons, Ltd., Galt, Ont.

**DYNAMOS.**
Canada Machinery Agency, Montreal.

**EDGERS (Gang).**
Berlin Machinery Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
Simonds Canada Saw Co., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Fisher, Sander Co., Berlin, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

**EDGERS (Single Saw).**
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
Simonds Canada Saw Co., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.

**END MATCHING MACHINE.**
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.

Mussens, Ltd., Montreal.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

ENGINES (Steam).
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

EXHAUST FANS.
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
Sheldons, Ltd., Galt, Ont.

FLOORING MACHINES.
Berlin Machine Works, Ltd., Hamilton.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler.
Mussens, Ltd., Montreal.
Samuel J. Shimer & Sons, Milton, Pa.
Canada Machinery Corporation, Ltd., Galt, Ont.
Baxter D. Whitney & Son, Winchendon, Mass.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

FLINT.
Wausau Quartz Co., Wausau.

FLUTING HEADS.
J. A. Fay & Egan Co. ,Cincinatti, O.

GAINING MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinatti, O.
C. Mattison Machine Works, Beliot, Wis.
Mussens, Ltd., Montreal.
Canada Machinery Corporation, Ltd., Galt, Ont.
H. W. Petrie Co., Ltd., Toronto.

GAS ENGINES.
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
H. W. Petrie, Ltd., Toronto.

GAUGES (Saw).
Shurly Dietrich Co., Ltd., Galt, Ont.
Simonds Canada Saw Co., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

GEAR HOBBING MACHINE.
Reynolds Machine Co., Moline, Ill.

GLUE CLAMPS.
Black Bros. Machinery Co., Mendota, Ill.
H. W. Petrie, Ltd., Toronto.

GLUE HEATERS.
J. A. Fay & Egan Co., Cincinnati, O.

GLUE JOINTERS
Canada Machinery Corporation, Ltd., Galt, Ont.
Canadian Linderman Co., Ltd.

GLUE SPREADERS.
J. A. Fay & Egan Co., Cincinnati, O.

GRINDERS (Cutter).
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Falls Machine Co., Sheboygan Falls, Wis.

GRINDERS (Knife, etc.).
E. C. Atkins & Co., Hamilton, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
T. A. J. Burton Saw Co., Ltd., Vancouver, B.C.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

GRINDERS (Tool).
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Valley City Machine Works, Grand Rapids, Mich.

GROOVING HEADS.
E. C. Atkins & Co., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
C. Mattison Machine Works, Beloit, Wis.
Samuel J. Shimer & Sons, Milton, Pa.
Canada Machinery Corporation, Ltd., Galt, Ont.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

HAND PROTECTORS.
J. A. Fay & Egan Co., Cincinnati, O.
Jones Safety Device Co., Hamilton, Ont.

HAND SCREWS.
Black Bros. Machinery Co., Mendota, Ill.
J. A. Fay & Egan Co., Cincinnati, O.

HEATING APPARATUS.
Sheldons, Ltd., Galt, Ont.

HANDLE AND SPOKE MACHINERY.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
J. M. Nash, Milwaukee, Wis.
Ober Mfg. Co., Cragrin Falls, O.
Baxter D. Whitney & Son, Winchendon, Mass.

HUB MACHINERY.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.

INJECTORS.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

JOINTERS.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Canadian Linderman Co., Ltd.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

KNIVES (Planers and Others).
Shurly Dietrich Co., Ltd., Galt, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
E. C. Atkins & Co., Hamilton.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.
Samuel J. Shimer & Sons, Milton, Pa.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

LACE LEATHER.
Sadler & Haworth, Montreal.

LAST MACHINERY.
Canada Machinery Agency, Montreal.

LATHES (Pattern Makers').
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Valley City Machine Works, Grand Rapids Mich.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

LATHES (Turning).
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Haspeler, Ont.
C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Plessisville Foundry, Plessisville, Que.
Valley City Machine Works, Grand Rapids, Mich.
Baxter D. Whitney & Son, Winchendon, Mass.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

LOOSE PULLEYS.
J. A. Fay & Egan Co., Cincinatti, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

LUBRICANTS AND GREASES.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

LUMBER.
Elgie & Jarvis, Toronto.

MITRE MACHINES.
Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

MITRE SAWS.
Shurly Dietrich Co., Ltd., Galt, Ont.
E. C. Atkins & Co., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Canada Machinery Corporation, Ltd., Galt, Ont.
Simonds Canada Saw Co., Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo N.Y.
H. W. Petrie, Ltd., Toronto.

MITRE CLAMPS.
Black Bros. Machinery Co., Mendota, Ill.
H. W. Petrie, Ltd., Toronto.

MORTISING MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Jones & Glass Co., Montreal.
Mussens, Ltd., Montreal.
Plessisville Foundry Co., Plessisville, Que.
Valley City Machine Works, Grand Rapids, Mich.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

MOTORS.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.

MULTIPLE BOXING MACHINES.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
J. M. Nash, Milwaukee, Wis.

PATTERN SHOP MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Baxter D. Whitney & Son, Winchendon, Mass.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

PICTURE FRAME MACHINERY.
Black Bros. Machinery Co., Mendota, Ill.
Canada Machinery Corporation, Ltd., Galt, Ont.
Hespeler Machinery Co., Ltd., Hespeler Ont.

PLANES.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler Ont.
Mussens, Ltd., Montreal.

PLANERS.
Berlin Machine Works, Ltd., Hamilton Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Baxter D. Whitney & Son, Winchendon Mass.
The Goldie & McCulloch Co., Ltd., Galt Ont.
E. & B. Holmes Machinery Co., Buffalo N.Y.
H. W. Petrie, Ltd., Toronto.

PLANING MILL MACHINERY.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Samuel J. Shimer & Sons, Milton, Pa.
Baxter D. Whitney & Son, Winchendon, Mass.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
Black Bros. Machinery Co., Mendota, Ill.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie Co., Ltd., Toronto.

PULLEYS.
Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinatti, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

QUARTZ.
Wausau Quartz Co., Wausau.

RESAWS.
Shurly Dietrich Co., Ltd., Galt, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency Montreal.
Simonds Canada Saw Co., Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinatti, O.

Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

RIM AND FELLOE MACHINERY.
J. A. Fay & Egan Co., Cincinnati, O.
Canada Machinery Corporation, Ltd., Galt, Ont.

RIP SAWING MACHINES.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Canada Machinery Corporation, Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

ROLLER BEARINGS.
Mussens, Ltd., Montreal.

SAFETY GUARDS (For Band Saw Machines, Jointers, Rip Sawing Machines, Shapers, Swing Saws, etc.).
The Jones Safety Device Co., Ltd., Hamilton, Ont.
Fair Manufacturing Company.

SANDERS.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
J. M. Nash, Milwaukee, Wis.
Ober Mfg. Co., Chagrin Falls, O.
Fisher Sander Co., Berlin, Ont.
Black Bros. Machinery Co., Mendota, Ill.
H. W. Petrie, Ltd., Toronto.

SAND.
Wausau Quartz Co., Wausau.

SANDPAPER.
Black Bros. Machinery Co., Mendota, Ill.

SANDERS (Moulding, Belt and Panel).
Black Bros. Machinery Co., Mendota, Ill.
H. W. Petrie, Ltd., Toronto.

SASH, DOOR AND BLIND MACHINERY.
Berlin Machine Works, Ltd., Hamilton.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Samuel J. Shimer & Sons, Milton, Pa.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
Black Bros. Machinery Co., Mendota, Ill.
H. W. Petrie, Ltd., Toronto.

SAWS (Hand).
Shurly Dietrich Co., Ltd., Galt, Ont.
E. C. Atkins & Co., Hamilton, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
Simonds Canada Saw Co., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.

SAW MILL MACHINERY.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.

Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

SAW SWAGES, AUTOMATIC FILERS.
E. C. Atkins & Co., Hamilton, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

SAW TABLES.
Canada Machinery Corporation, Ltd., Galt, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

SCRAPING MACHINES.
Baxter D. Whitney & Son, Winchendon, Mass.

SCROLL SAWS.
Canada Machinery Corporation, Ltd., Galt, Ont.
Shurly Dietrich Co., Ltd., Galt, Ont.
E. C. Atkins & Co., Hamilton, Ont.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.

SECOND HAND MACHINERY.
Canada Machinery Agency, Montreal.
Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

SHAPERS.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Plessisville Foundry, Plessisville, Que.
Samuel J. Shimer & Sons, Milton, Pa.
Baxter D. Whitney & Son, Winchendon, Mass.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

SHAVING COLLECTORS.
Canada Machinery Agency, Montreal.

SINGLE SPINDLE BOXING MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.

SLAVE SAWING MACHINE.
Baxter D. Whitney & Son, Winchendon, Mass.

SURFACERS.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Baxter D. Whitney & Son, Winchendon, Mass.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

SWING SAWS.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Galt, Ont.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Plessisville Foundry, Plessisville, Que.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

TABLE LEG LATHES.
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Baxter D. Whitney & Son, Winchedon, Mass.

TENONING MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

TOOLS (Hand).
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Samuel J. Shimer & Sons, Milton, Pa.

TRIMMERS.
Berlin Machine Works, Ltd., Hamilton
Canada Machinery Corporation, Ltd., Galt, Ont.
Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.

TRUCKS.
Canada Machinery Corporation, Ltd., Galt, Ont.
Sheldons, Ltd., Galt, Ont.
Hespeler Machinery Co., Ltd., Hespeler Ont.

TURNING MACHINES.
Berlin Machine Works, Ltd., Hamilton Ont.
J. A. Fay & Egan Co., Cincinnati, O.
C. Mattison Machine Works, Beloit, Wis.
Canada Machinery Corporation, Ltd., Galt, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Plessisville Foundry, Plessisville, Que.
Baxter D. Whitney & Son, Winchendon Mass.
H. W. Petrie, Ltd., Toronto.

UNDER-CUT SELF-FEEDING FACE PLANER.
J. A. Fay & Egan Co., Cincinnoti, O.
Canada Machinery Corporation, Ltd., Galt, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Falls Machine Co., Sheboygan Falls, Wis.

GUMMERS, ETC.
E. C. Atkins & Co., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.

UNIVERSAL WOODWORKER PLANER.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

VENTILATING APPARATUS.
Sheldons, Ltd., Galt, Ont.

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Sheldons, Ltd., Galt, Ont.

VENEER PRESSES (Hand and Power).
Canada Machinery Agency, Montreal.
Hespeler Machinery Co., Ltd., Hespeler Ont.
Hydraulic Press Mfg. Co., Mount Gilead, Ohi
Mussens, Ltd., Montreal.
Black Bros. Machinery Co., Mendota, Ill

VISES.
Mussens, Ltd., Montreal.

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Shurly Dietrich Co., Ltd., Galt, Ont.
Simonds Canada Saw Co., Montreal.
E. C. Atkins Co., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
The A. J. Burton Saw Co., Ltd., Vancouve B.C.
H. W. Petrie, Ltd., Toronto.

VISES (Pattern Makers').
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.

VISES (Circular Saws).
E. C. Atkins Co., Hamilton.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.
The A. J. Burton Saw Co., Ltd., Vancouve B.C.
H. W. Petrie, Ltd., Toronto.

WAGON AND CARRIAGE MACHINERY
Berlin Machine Works, Ltd., Hamilto Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Plessisville Foundry, Plessisville, Que.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespel Ont.
Ober Mfg. Co., Chagrin Falls, O.
Baxter D. Whitney & Son, Winchendo Mass.

WOOD PULLEYS.
Canada Machinery Agency, Montreal.
Plessisville Foundry, Plessisville, Que.

WORK BENCHES.
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J. A. Fay & Egan Co., Cincinnati, O.

# "Amphibia"

**Waterproof**

# Leather Belting

is made to do hard work in a wet place better than any other Belt. Let us prove it to you by sending a Belt on trial.

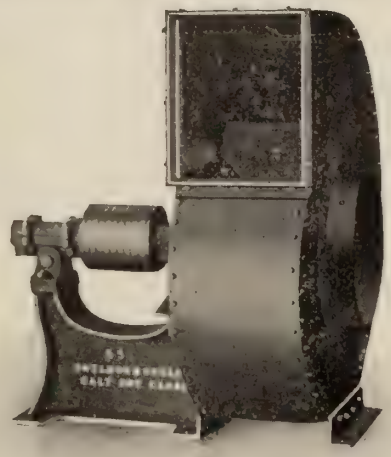
We always carry a full stock of all kinds of Leather Belting.

## Sadler & Haworth

**Montreal - Toronto**

**The New Slow Speed**

# Sheldon Exhaust Fan



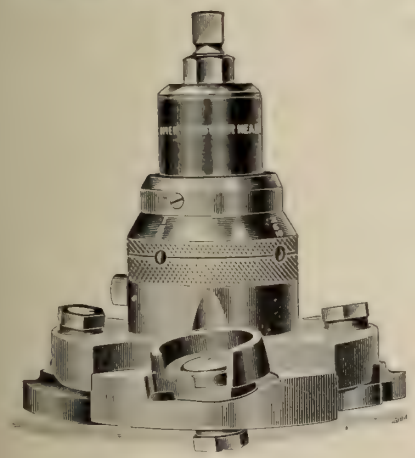
**The Fan that is revolutionizing the Shaving Exhaust Business**

It will handle wet or dry, long or short shavings and sawdust, and will do this work with a guaranteed reduction in speed of from 25% to 40% less and with a power consumption of 20% to 35% less, than any other exhaust fan. The Casing is very similar to that formerly used, but the wheel is of an entirely different design.

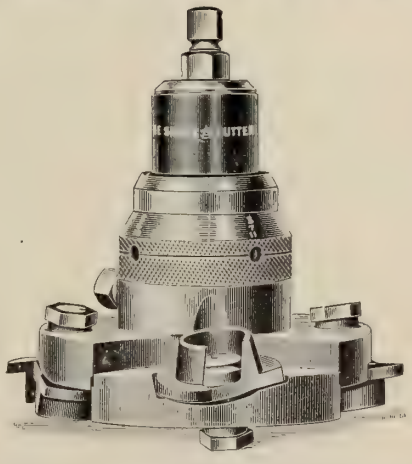
**Let us tell you more about it**

## SHELDONS LIMITED - Galt, Can.

# REDUCE RUNNING EXPENSES



**Tools that maintain a uniform shape of pattern, and for an indefinite peri save time--save labor--save running expenses.**



THE SHIMER CUTTER HEADS offer you these several advantages. They furnish a system for making Flooring, Ceiling, Siding, Jointing, Ship Lap, etc., that removes the difficulties incident to the use of every other make of Cutter Head. These tools save actual labor —save machine time—put out a product faultless in form and finish.

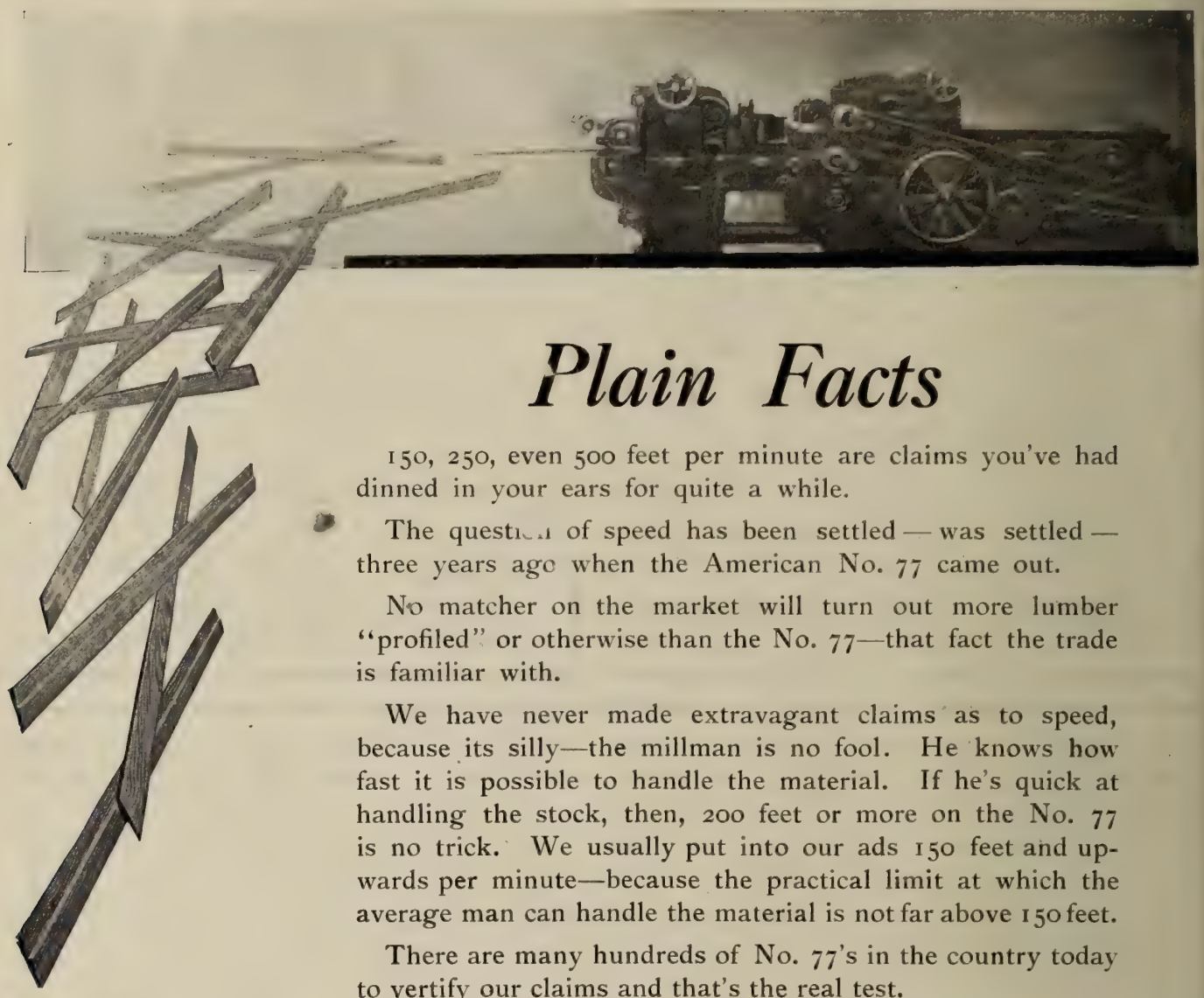
The Shimer Cutter Heads are as simple as a saw to keep in order. The set of the Bits for point and edge clearance is a permanent "make-ready" which clears away all friction and protects the cutters from burning and excessive wear.

The Cutters are divided into upper and lower series, parting the chip in the middle of the cut, permitting of a most complete expansion or contraction of the tongue and groove proportions by the turning of a single lock nut. This expansion feature regulates the fitting as close as one-third of a sixty-fourth of an inch. If the Bits are a little dull and you wish to finish the day without sharpening, you can turn the spanner ring one notch to enlarge the groove (or reduce the tongue) when the fitting will again be in perfect shape.

If you wish to reduce running expenses it will pay you to study the advantages offered by the Shimer Cutter Heads. There is nothing like them for Strength—for Reliability—for Fast Cutting—for quick Adjustment —for all-round work and lasting qualities.

**SAMUEL J. SHIMER & SONS, GALT, ONT., CAN. Branch at Milton, Pa.**

# HOW MANY ? FEET PER MINUTE



## *Plain Facts*

150, 250, even 500 feet per minute are claims you've had dinned in your ears for quite a while.

The question of speed has been settled — was settled — three years ago when the American No. 77 came out.

No matcher on the market will turn out more lumber "profiled" or otherwise than the No. 77—that fact the trade is familiar with.

We have never made extravagant claims as to speed, because its silly—the millman is no fool. He knows how fast it is possible to handle the material. If he's quick at handling the stock, then, 200 feet or more on the No. 77 is no trick. We usually put into our ads 150 feet and upwards per minute—because the practical limit at which the average man can handle the material is not far above 150 feet.

There are many hundreds of No. 77's in the country today to vertify our claims and that's the real test.

Take the style siding shown here. It's perhaps the most difficult form of two-drop to cut. The No. 77 does it—is doing it—in mills all over the country at 150 and 200 feet per minute.

The No. 77 is a growth—fundamently its the same as it was three years ago; but the vigilance of the man who designed it still upon it, and it stands today without a rival.

Get in touch with the sales office nearest you or write us direct.

FIRST IN QUALITY

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**American Wood Working Machinery Co.**

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SALES OFFICES:
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SPOKANE, WASH.
314 W. Pacific. Ave.
SAN FRANCISCO
46 Fremont Street.

CANADIAN WOODWORKER

Toronto, February, 1912

# Whitney Gauge Lathe

IN making duplicate turnings, that is turnings after a single pattern, a Guage Lathe is the machine to employ, and a Whitney Gauge Lathe represents all that mechanical ingenuity can devise in perfection and ease of operation and rapid output.

Turnings can be made altogether round, or with portions left square, moreover; the varities of turnings made by the Whitney Guage Lathe, is only limited by the number of patterns of knives you use.

The operation is entirely mechical as the guiding of the cutting tools is done by the machine, with one at work, odds and ends of wood stock that would otherwise go to waste, can be worked up into an endless variety of turnings—spindles, spools, rods, grilles, chair legs and hundreds of other things.

For full details, and to remove the uncertainty as to the betterness of the Whitney Guage Lathe, write direct to us, or our nearest selling representative.

## Baxter D. Whitney & Son

**WINCHENDON, MASS.**

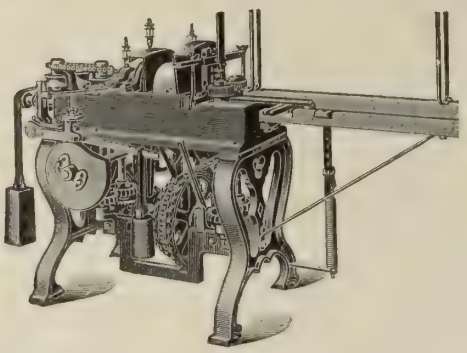
**Selling Representations:**

**Pacific Coast Sales Dept., H. H. Plummer Manager Pacific Bldg., Seattle, Wash.**

**Henry Kelley & Co., 26 Pall Mall Manchester, England.**

This is a Cut of the

# No. 10 Ober Lathe



for turning Fork, Hoe, Rake, Mop, Broom and Ice Hook Handles, Pike Poles, Tent Poles Trolley Poles, Curtain Poles, Chair Bows, Dowels, Rods and similar work.

**Simple Strong Durable Economical**

We also manufacture other lathes for making Spokes, Handles and Variety Work, Sanders, Shapers, Boring and Chucking Machine, etc.

Complete Catalogue and Price List Free.

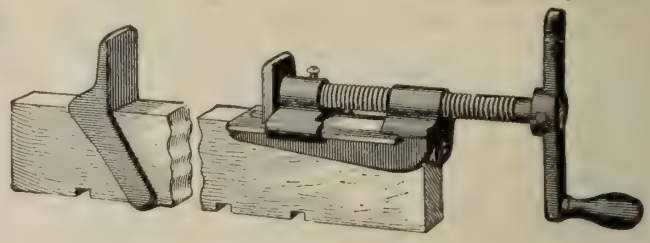
## The Ober Mfg. Co.

**31 Bell St., CHAGRIN FALLS, Ohio., U. S. A.**

## Clamp Fixtures, Per Set, 50 Cents

Gentlemen :—We are pleased to state that the 25 dozen Patent Malleable Clamp Fixtures which we bought of you a little over a year ago are giving excellent service. We are well satisfied with them and shall be pleased to remember you whenever we want anything additional in this line.

Yours truly, CURTIS SASH & DOOR CO.,
Sioux City, Iowa.



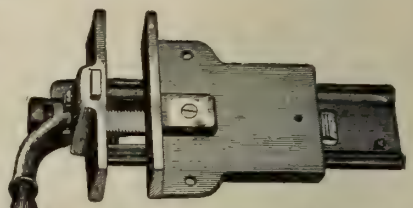
No. 1

STEEL BAR CLAMPS

The bars of our STEEL CLAMPS are especially tempered and guaranteed indestructable. Screws and fitting quickest possible action and made to stand any service or abuse. Don't fail to test sample of this clamp before you buy elsewhere.

Over 26,000 of our Steel Rack Guaranteed Vices

now in use. We solicit the privilege of submitting samples of these specialties on terms that will be attractive to rated firms. Write for list and prices.

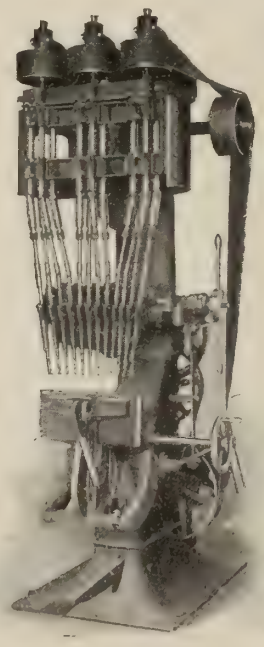


RAPID-ACTING WOODWORKER'S VISE No. 3

**E. H. Sheldon & Co., 326 N. May St., Chicago, Ills.**

## Bores Twelve Holes at Once

At any angle up to 35 degrees from 1-in. centre to centre to 24 in. apart.



# The Nash Twelve Spindle Universal Boring Machine

will bore all spindle and post holes at one operation in 1000 to 1200 chair seats per hour, as well as a large variety of boring using any number of bits up to twelve.

Shall I send you details?

**J. M. Nash,** 842-848 30th St. **Milwaukee, Wis.**

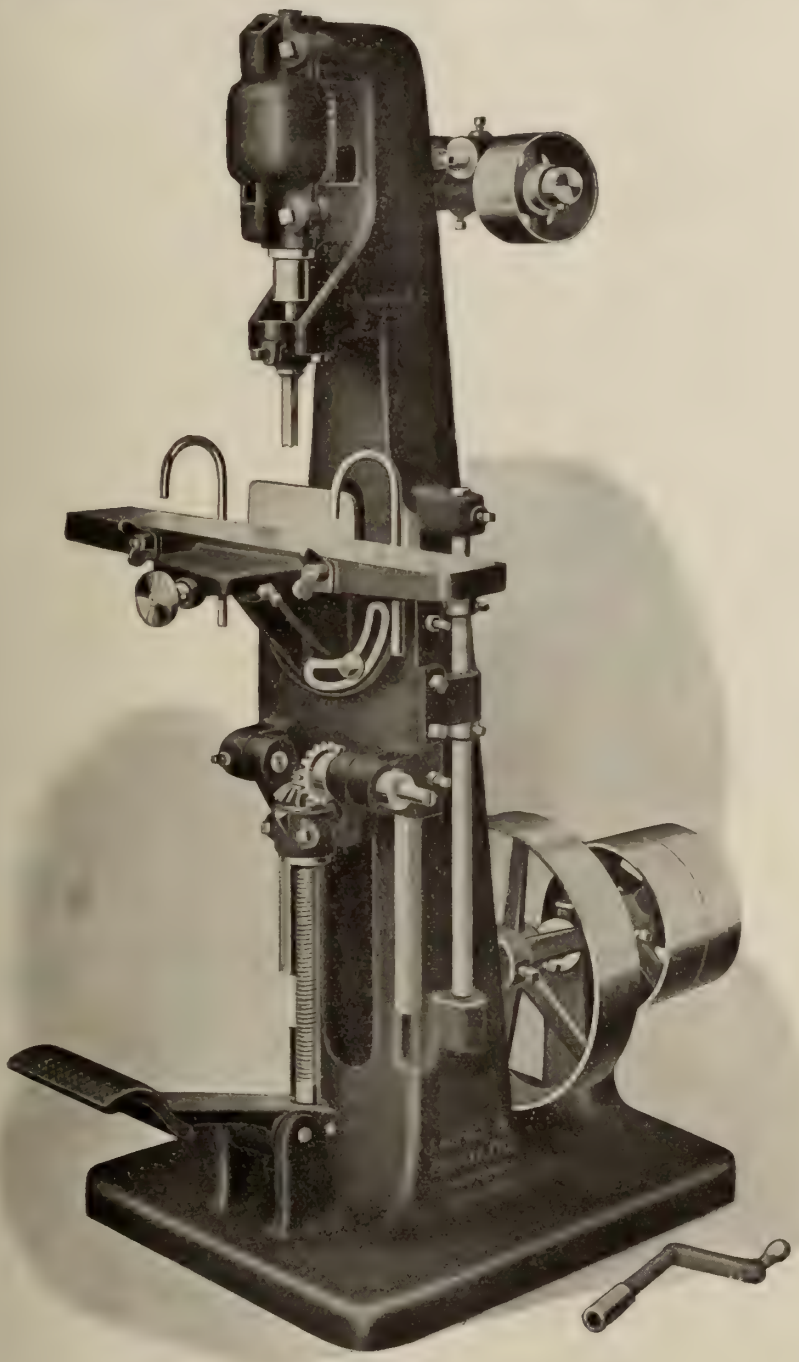
**Carborundum Knife Grinding Wheels have cut their way into favor in many of the most prominent wood working establishments in the country**

They not only do twice the work of any other grinding wheels—but they do it better and cleaner. They stand up well—do not burn the work—do not draw the temper even from the finest steel. Require almost no attention and last much longer than other abrasive wheels.

**THE CARBORUNDUM COMPANY**

**Niagara Falls, New York.**

# No. 272 Hollow Chisel Mortiser



No. 272—VERTICAL HOLLOW CHISEL MORTISER

The only good hollow chisel mortiser made to sell at a low price.

The mortises made are absolutely accurate and there are no chips to be cleaned out.

Makes mortises up to ¾ in. square and 3 in. deep, or 6 in. deep by reversing.

Entirely self-contained.

Uses little power.

Occupies small floor space.

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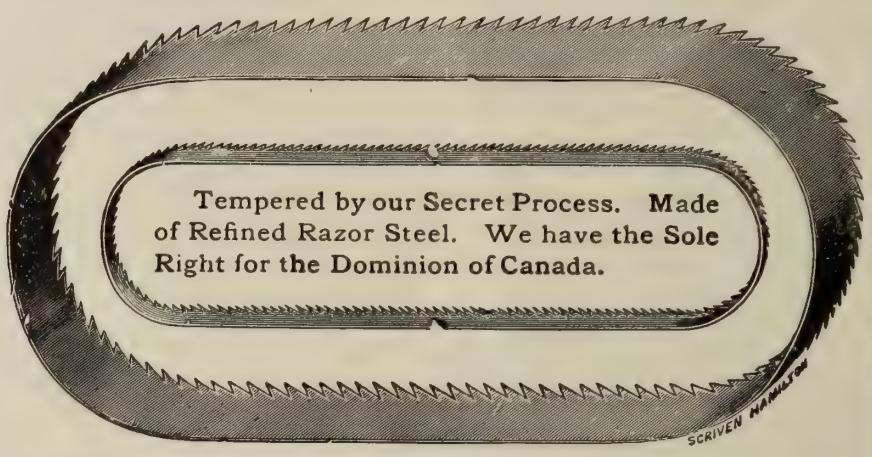


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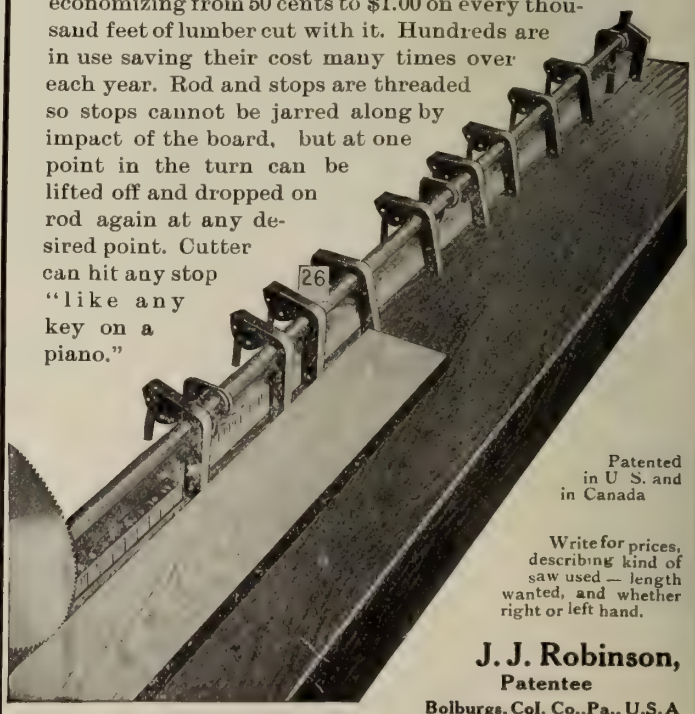


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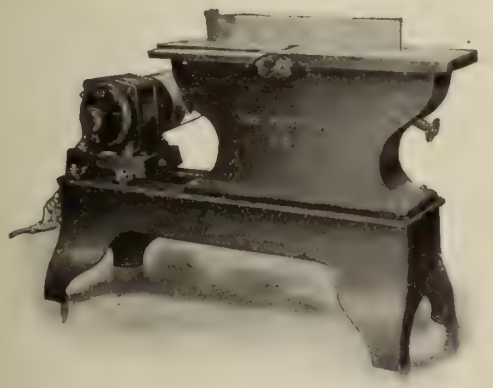

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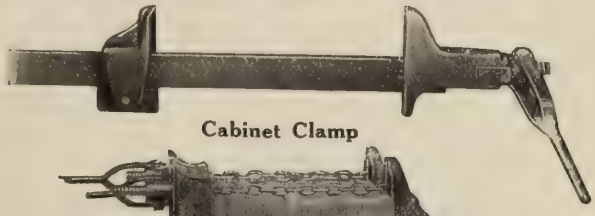

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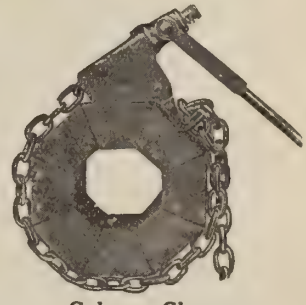

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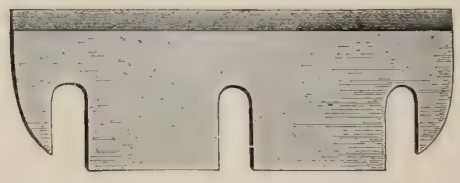

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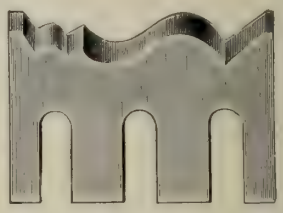

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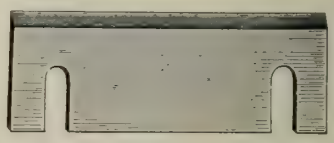

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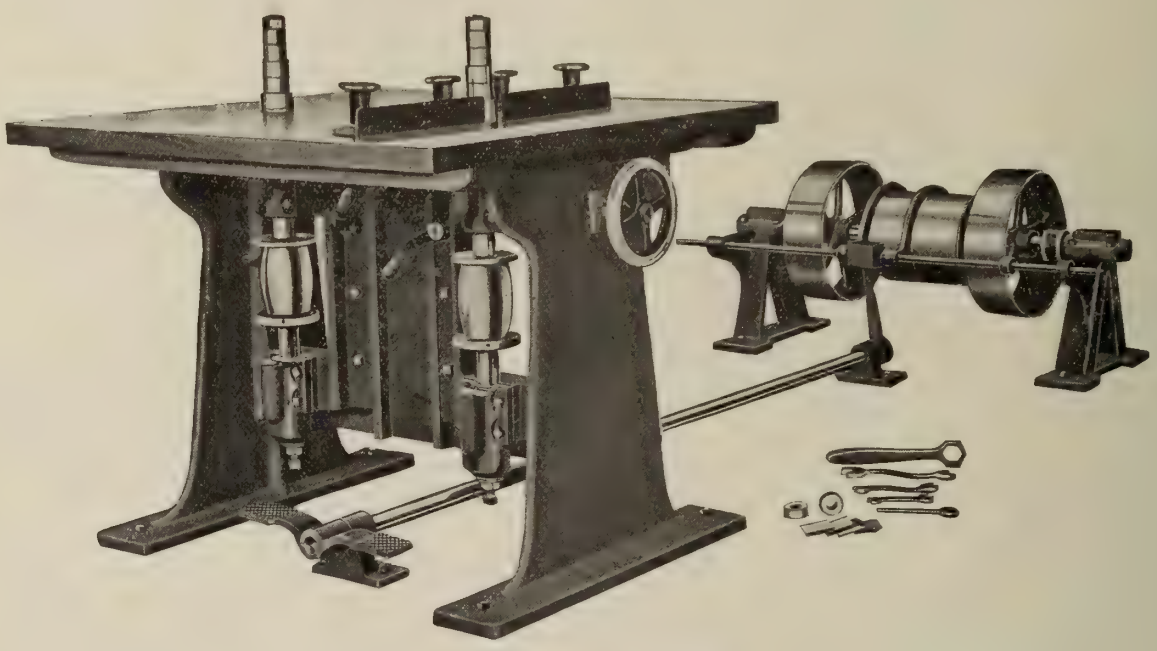

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**Vol. 11** **February, 1912** **No. 2**


## "EVERY PROSPECT PLEASES"

All indications promise us a repetition of last year's bountiful business. Nineteen-twelve has opened up earlier than usual and trade conditions remain more than satisfactory in practically every branch of woodworking.

Taking Toronto as an index of the building outlook throughout the cities of Canada, there will be enjoyed another season of construction activity such as made 1911 a prosperous year for builders and allied workers. The demand in the West for more buildings, and bigger, remains unabated, and the returns from the prairie and coast cities will undoubtedly show increases over the magnificent figures of last year. The tide of immigration will this year be swelled through more active campaigning on the part of all the railways, and the two new transcontinentals will put forth every effort to settle the land along their lines with industrious and money-bringing newcomers. The advanced policy of Ontario to more actively open up New Ontario cannot but prove beneficial to the building trades both in the north country and in older Ontario, where the progress of the north is always reflected.

The influx of newcomers and the increasing individual wealth of the West will easily maintain the great building activity that already has made itself known this year out there.

There is nothing looming on the horizon that might be construed as being unfavorable to continued prosperity. There are no discouraging signs to point to. Money conditions are good, that is generally, for there are always instances where the financial interests do not seem to see eye to eye with the builder.

There is noticeable the usual apprehension regarding labor conditions. Each spring for some years now all difficulties between employees and employers have been settled amicably, and evidently to the entir satisfaction of all parties concerned. The men, to judge from the general prosperity, have lost nothing by their spirit of helpfulness, and it is to be sincerely trusted that this spring both sides will enter hand in hand upon another season of mutual understanding, common welfare and profit.

It will be noticed that prices of materials in the sash and door trade have increased five per cent. over this time last year, but quality has not increased correspondingly. If anything the general grade is much lower.

To speak locally, the demand for houses in Toronto is at present very great. That there will have to be an unprecedented number built is certain. Builders, it is said, will not find conditions quite so satisfactory in the house building line as enjoyed in former years. The price of land within the city limits has gone up enormously. It is fast becoming impossible to erect any class of house, particularly the six-roomed one, with any assurance of reasonable profit because of the high price of land. The entire lack of transportation facilities to many highly desirable sections, and the slow approach of car service to many parts even within the boundaries promise that the end of the year will see a greater scarcity than ever of the small house. To supply the insistent demand for this class of home many proposals are urged, including the adoption of garden suburbs on a big scale. What may happen is that construction of solid rows of houses, even as a few years ago, will again spring into prominence.

As for the construction of big buildings in Toronto, this will go on undiminished in extent. Two or three great structures are already planned and there is a more than an ordinary feeling that others are needed and must come. All the public buildings have long since grown small for the work of the city, and need adding to. Many new schools are planned by the civic authorities and other public institutions will have to enlarge accommodations.

The mills are being kept busy for this time of year stocking up in anticipation of the huge demands that will undoubtedly be placed upon them.

Prosperity and progress show on every hand.

## New Books

### Book on Dust

Written in an unusually entertaining way for a text book, one of the most instructive volumes received at the Woodworker office for some time is the "Kingdom of Dust," Published by Popular Mechanics. 50c.). It deals with every phase of this subject, and extends deeply into many bypaths. While the book is highly scientific, and decidedly logical, it is not profoundly technical in its language, in fact like other text books in the "Popular Mechanics" series, it is written "so you can understand it." Prof. I. Gordon Ogden is the author.

An interesting chapter is that relating to dust as the foe of the workman. It gives tables showing the amount of dust inhaled by artisans in various trades, and the woodworker comes pretty close to the top of the list as to the amount of particles breathed. The proportion of deaths, however, is not quite so high as in many other trades, and the many modern blowing and ventilating devices now used in mills is reducing that ratio. This book may be obtained from "Book Department," Canadian Woodworker. Price 50 cents.

## Hand Forging

Dealing largely with the methods of making interior decorative ironwork as well as ornamental hand-forging, a book just published,—"Hand Forging and Wrought Iron Ornamental Work," Published by Popular Mechanics, should prove instructive to

(Continued on page 11)

# Opportunities for Foreign Trade

The following enquiries have been received from England and other countries relating to Canadian trade. The names of the firms and their addresses can be secured by interested parties by writing to the Enquiries Department, Canadian Woodworker.

Any of our readers who are answering the enquiries should not fail to forward references—particularly if bankers references.

76. **Wood.**—A London firm having a demand for best three-ply pine or similar three-ply wood, asks for names of Canadian manufacturers.

77. **Tool handles.**—A firm in the West of England is in the market for supplies of tool handles of various kinds.

78. **Handles.**—A South African firm of wholesale hardware merchants wishes to be placed in communication with manufacturers and exporters of pick, shovel, hammer and axe handles, etc. Catalogues and price lists requested.

79. **Walnut wood.**—A Birmingham merchant is desirous of importing Canadian walnut wood.

80. **Wood Turners.**—A Manchester firm with an extensive connection is open to receive prices and catalogues from Canadian wood turners of various articles. Further information will be supplied upon application to the Department of Trade and Commerce.

81. **Process for utilizing sawdust.**—A Welsh firm interested in a process for utilizing sawdust are desirous of getting into touch with Canadian lumber manufacturers.

82. **Furniture.**—A German commission house wishes to get into touch with some good furniture dealers in Canada open to handle Russian-made bentwood furniture manufactured in the Austrian style.

83. **Handles.**—A London manufacturing firm seeks supplies of special wood handles as used in the production of baby carriages, and would be glad to receive quotations from Canadian manufacturers.

84. **Agents.**—A Yorkshire company manufacturing specialties in wood stains and preservatives, and also paints and enamels, asks to be placed in touch with a first-class Canadian firm who would be prepared to act as their representatives.

85. **Lumber.**—A large firm of commission merchants in Havana is anxious to correspond with Canadian exporters of lumber.

86. **Organs.**—A London firm of small pipe organ manufacturers desires to open up business in Canada.

87. **Planks.**—A Bristol firm would be glad to purchase parcels of hardwood planks from Halifax to Bristol.

88. **Wood-working machinery.**—A firm of consulting engineers and manufacturers' agents in Buenos Ayres, desires to be placed in touch with manufacturers of wood-working machinery. Quotations must be c.i.f. Buenos Ayres, and full particulars as to shipping weights, etc., must be given. Further particulars from the Department of Trade and Commerce.

89. **Trucks, warehouse and baggage.**—A firm of consulting engineers and manufacturers' agents in Buenos Ayres, desires to be placed in touch with manufacturers of warehouse and baggage trucks. Quotations must be c.i.f. Buenos Ayres, and full particulars as to shipping weights, etc., must be given. Further particulars from Department of Trade and Commerce.

90 **White wood dowels.**—A Birmingham firm would like to receive quotations on white wood dowels, 36, 48, 60 and 72 inches; 36-inch in all diameters from 3*16 up to 1 or 1¼ inch.

91. **Handles.**—A Manchester firm is open to receive prices of wood handles, all kinds, including hay fork, manure fork, Irish spade and shovel, pick, acme, and ash stems, from manufacturers only.

92. **Oak spokes.**—A Manchester firm desires prices and dimensions of oak spokes from Canadian manufacturers only.

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**The Aichiken Commercial Museum, Nagoya, Japan**

The following information concerning this Museum will interest Canadian manufacturers and exporters.

The origin of the Museum dates back to 1878, when a local museum was established for the first time. It was on a small scale and merely an exhibition hall of local products. Various changes and improvements have, subsequently, been made, yet it was totally inadequate to meet the business requirements of the city, as it has grown in size and importance as a commercial and industrial center. Finally, in 1908, a bill was introduced and passed in the Prefectural Assembly for an appropriation of 400,000 Yens for the new buildings of the Museum. The work was begun at once, and it was during March, 1910, that it was completed. This grand new structure, renaissance in style, is located in an ideal site in the heart of the city of Nakoya covering a choice ground of six acres. With the completion of the new buildings, the name, "Aichiken Commercial Museum" was given to the institution, and, on May 15th, Mr. T. Yamaguchi was appointed as its director. The establishment of this Museum is, primarily, for the betterment and development of industrial and commercial conditions of the Premecture of Aichi. With this purpose in view, the Museum assists in many ways, local merchants and manufacturers. The Museum also directs its efforts in fostering and building up international trade, as the city of Nagoya is yet a virgin market for foreign goods. To draw an interest among the local people to that direction, a special care is taken in the collection and display of exhibits.

There are three buildings for the purpose of exhibition. In the first or main building are arranged all classes and kinds of articles and commodities collected from all parts of the world. The exhibition of the second building or Machinery Hall, is especially interesting, as operations of machinery are occasionally shown.

The Third Building is exclusively used for Bazaar, which has been established to accommodate visitors, who may wish to purchase local products. The Museum solicits and invites the exhibition of model and sample goods of every description offering to merchants and manufacturers excellent opportunities for the introduction of their goods. The Museum undertakes to study and investigate the conditions of different markets collecting important data for the enlightenment of the business public. Correspondence shall be maintained with business firms, commercial museums and other similar institutions both home and

abroad. The Museum is most willing to furnish information on business matters and to act as a commercial medium between business houses of Japan and with those of other countries.

There are no privileged exhibitors. Native and foreign exhibitors can exhibit in the Museum on equal footing. As a matter of fact, to facilitate and invite foreign exhibitors, some assistance, which is generally denied to the native exhibitors, is extended to them. The Museum has been in possession of many inquiries on the subject of space charges. To each of them the Museum has emphatically made declaration that there are absolutely no charges, and that it shall remain so.

### Largest Concert Organ on American Continent

The largest concert organ on the American continent is being shipped from Quebec to Toronto, to be installed in Convocation Hall at the University. Within a few weeks the splendid instrument will be fitted up complete in its new home. Lest any rain should leak through the roof of the building and cause damage to the organ, a special metallic roof has been built at a slant over the niche behind the platform where the instrument is to be located.

While there are two bigger organs in Toronto at present—one in the Metropolitan Church, and the other in new St. Paul's, it must be remembered that these are church organs as distinguished from the convocation hall instrument, which is a concert organ. A similar one, but on a much smaller scale, is to be seen at present in the Conservatory of Music.

It is interesting to compare this organ as to size with some cathedral organs in Great Britain, where the standard of organ building is very high and organs are of less than 70 speaking stops. Peterboro has 68, Chester (rebuilt in 1910) 65, Lichfield 65, Norwich 64. York Minster, with its immense space, has only 70; Westminster Abbey and St. Paul's Cathedral, 77 each. King's College, Cambridge, Christ Church, Oxford, and the other collegiate chapels have smaller instruments. Undeniably these buildings reinforce and sustain organ tone very much; but even at the Royal Albert Hall, London, with an audtiorium seating 8,000 persons, the famous Willie organ contains not many more than 100 stops. Obviously the university's instrument of 73 stops, especially with the wealth of couplers provided, does not suffer by comparison even on the score of size, and will be entirely adequate to the space it is designed to fill.

The diapasons and reeds throughout have been modeled upon the best examples of English voicing; and with the contrasts afforded by the many flutes and softer stops and the numerous couplers which have been provided, every legitimate effect in organ playing should be at the disposal of the performer, Every modern device for stop control by pistons and pedals is employed, including balanced crescendo pedals, by the use of which the tone can be brought from the softest whisper to the full organ, or arrested at any point between. It is the intention to place the solo tubes on at least 12 inch pressure; so that the effect of the full organ, topped by these magnificent reeds, ought to be brilliant in the extreme.

### Apprenticeship and the Unemployed

Much help is being given in solving the problem of the unemployed in England, by the National Institute of Apprenticeship. The majority of the unemployed are out of work because they are unskilled laborers, and the great number of unskilled is largely due to the diminution of apprenticeships. This Institution was founded six years ago "in order that boys and girls should start life not only with a liberal education and training given in the schools, but also with a practical training which was to be had in the workshop." Since it began work a large number of boys have been trained, and applicants for places now exceed forty a week.

On the registers of the institution there are the names of nearly 300 carefully selected masters, many of them ranking among the most important in their respective trades, who have taken or agreed to take apprentices from the institution. The only qualifications required for an applicant is his, or her, respectability and fitness for the selected trade. No other questions are asked, and no other restrictions imposed. The institute supervises the apprenticeship so as to ensure, as far as possible, that the apprentices are properly taught their trades and do their duty to their masters.

### A Trade the Best Legacy

A man who teaches his boy a trade provides more certainly for his future than if he leaves him a large property, but without knowing how to turn his hand to useful employment. The ancient Hebrews had a saying: "He who does not teach his boy a trade, leaves him to a thief." It is almost as true to-day as it was in any period of history. A university diploma is by no means an insurance against lack of work, a man who can fashion a horseshoe, make furniture, mould, engrave, varnish, make clocks, tailor, cook, or build a house, is not long out of employment. If he can do either of these things well, and is willing to work, he need never walk the streets seeking for work and not find it.

### The Balky Party

A Toronto man in company with a friend was driving a big car along a road in the interior of Hastings County, when they met an old-fashioned high carriage in which were an old-fashioned couple. The frightened country people jumped to the ground and the motor car came to a halt.

Observing the consternation of the startled couple, the owner left his car and s epped towards them.

"If you will let me," said he, "I'll lead your horse past our machine."

"Never mind the horse, stranger," said the countryman. "You lead my old woman past that thing and I'll get the horse by all right."

### Hand Forging

(Continued from page 9)

all engaged in this work. It undoubtedly would be a great source of knowledge for the man who would practice metal ornamentation as a hobby. The book, which was written by Thomas F. Googerty, is unusually well illustrated, and is comprehensive and complete. This may also be had from "Book Department," Canadian Woodworker. Price $1.00.

### Mica Better Than Glass

Save your eyes by wearing mica-eyed goggles when at the emery wheel. Mica is better than glass, because if the glass were broken by a flying something it might seriously injure your eyes. And keep out of line with the wheel.

# Practical Talk on the Characteristics of Varnish

By A. Ashmun Kelly.

Properties of varnish and the variations that are found in them, free working and hard drying, liability to cracking, one coat or two for durability, lustre and the other characteristics of varnishes in the finishing-room.

If the reader is of a mathematical turn of mind, he has doubtless often discussed the relations between several variable quantities which are related, and which influence each other; and by giving all possible value to each factor he has deduced the effect upon the others and has also determined the final resudt to the whole system.

The idea is this: There is a limit in the combination of the desirable properties which a good varnish possesses; and what is the limit? These properties are in rubbing varnish: free working, hard drying, and free rubbing. Next comes the non-liability to crack. This survey gives a set of properties very closely related.

The problem in the making of a rubbing varnish is in ascertaining the limit in the employment of these properties. These ascertained, we produce a perfect rubbing varnish. The varnish-maker equal to the solving of the problem finds it a question of judgment, both as to what is best, technically considered, and what will please the user most.

### Free Working is the First Quality

The first quality of a rubbing varnish may be said to consist in free working. This quality may be varied at the will of the varnish-maker. He can make a varnish so tough that it will tire the arm and hand of the user to apply it, at the same time setting quickly, and not allowing of its flowing out smoothly, so that brush marks are left. On the other hand, he can make the rubbing varnish as easy flowing as oil itself, so that it will flow out nicely on the largest panel. He does neither, but adopts a middle ground, of course.

### Peculiarities of Rubbing Varnishes

With rubbing varnishes it is found in practice that, other things being equal, the free working and hard drying vary inversely. The more it has of the first quality the less it will have of the other. The rubbing varnish made to work as free as average finishing varnish will never become perfectly hard—and the rubbing varnish made tough will dry quicker than any other. When it comes to the question of a quick-rubbing varnish, the problem is: How quick is it safe to make it The general rule is to make it to dry hard in two days, and so that it will not have the least tendency to soften or rub up and sweat.

If the varnish-maker will make a score of samples of rubbing varnish with the property of free working varied between the possible limits, he will find that at one end of the series the sample will dry enough for rubbing in 10 hours, while at the opposite end the sample will never dry thoroughly hard. Then it is simply a matter of selecting the sample that will dry perfectly in the desired time and work the most free.

While we consider free working the first quality in a rubbing varnish, yet hard drying and free rubbing are the most important matters, free rubbing depending upon the proper drying. True, we cannot work a varnish that is too tough, we must have a free working article, but it must stand the rubbing or it will have to be cast away. So that we have to compare free working with free rubbing or hard drying.

We may get a series of varnishes, as in the first instance, testing them for drying and rubbing, finally narrowing the choice down to one that dries thoroughly in the required time and at the same time works freely. The further we extend the time for the drying the more we improve the free working quality of the varnish. It must dry right to rub well and it must not be hard enough to crack nor soft enough to not dry well.

### Drying Hard and Rubbing Well

Now, will the rubbing varnish that we have selected as best rub with absolute safety on time? That is the question we have to meet. It is not difficult to solve. Considered by itself the hard drying quality of the varnish depends upon the quality of the gums used, proportions observed, and method of combining the ingredients. A certain varying of these conditions will result in a series of varnishes beginning with a sample that will dry hard and rub well and have a very fine face in 24 hours. The opposite end of the series may not fulfill any of these requirements in six months. You can see the flexibility of the tests.

Free working may be said to be independent of quality or character of stock, and even to be independent in a large measure of the proportions observed; but in the matter of hard and satisfactory drying we have far more influences to take into consideration, and hence there is more difficulty in getting this property than in that of free working. Of course it is not impossible; far from it, for it is done every day.

What we need to do is to select from the series mentioned the freest working varnish that fulfills the requirement of drying in the right time. The terms hard-drying, good-rubbing, and good-face are comprehensive, but ordinarily these terms are synonymous and the varnish that is the hardest in drying is the best rubbing and will show the best face afterwards, and vice versa.

The third quality of a rubbing varnish is non-liability to crack, a moderately important property and equivalent to that of durability in a finishing varnish. Its limit of good quality is reached where it is beyond possibility of any tendency to being brittle. It is found by experience that those influences affecting this property are such as to make it vary directly with the free working. That is, the freer working a varnish it the less its tendency to crack and to peel.

### The Question of Durability

If carried to the limit, we would have for the most durable rubbing varnish, or the one with the least tendency to crack and peel, the freest working varnish. Or to put it in other words, a finishing varnish proper. As a matter of fact, for durability alone a coat of finishing varnish is preferable to a coat of rubbing varnish. Some wood-finishing experts, recognizing this fact, apply two coats of finishing varnish in order to obtain greater durability.

But durability alone is not what we want. For if we were to make the most durable job possible it would not begin to have the finish that we are able to obtain with the use of good rubbing varnish for the

under-coats. Extreme durability must be sacrificed in order to obtain a good-looking finish. The best average of durability that can be obtained with rubbing a free-working varnish that will be perfectly hard after varnish is found to be, both in theory and in practice, with a free-working varnish that will be perfectly hard after rubbing. All things being equal, the free-working and hard-drying (especially the former) are a guaranty of non-liability to crack. From this it is very evident that we cannot use any of the desirable properties of a rubbing varnish to a maximum extent but such is very limited, and that the limit is reached when the quality is used to the greatest extent possible, without interfering with other properties so much that the varnish would be unable to fulfill the requirements placed upon it.

Now, regarding a finishing varnish with the like aspect, we find the same to be true. For instance, there is no finishing varnish on the market that possesses the durability that would be given a varnish if durability was the only consideration. There are other very important properties possessed by a finishing varnish, such as color, free working and free flowing; these are of vital importance, and the attention given to these properties, to secure their presence, greatly modifies the durability. So it is true of each of the others, viz., of these four properties of a good finishing varnish, the extent to which each can be used is modified by the presence of the others, and this extent can be determined the same as in rubbing varnish.

### Exposure to Weather

Just as the adopted standard in different cases may vary, requiring more of this or that property so the amount of the other properties will have to be varied. This in work exposed to the weather, as in houses and railway cars, the greatest stress is laid on durability. In railway work particularly, this is the vital question, even more so than in carriage painting, the finishing varnish must possess extreme durability.

It is a fact, one however not generally known, that railway finishing is more durable than the finishing varnish made for the carriage painter. But the car finishing varnish will be found inferior to the carriage finishing varnishes in color, in working, and generally in the flowing. That is, if one property is distinctly modified the others are also.

These statements are useful to any varnish user, as they indicate the impossibility of making a varnish that will excel in every property. If a varnish does excel on any one property, or any two properties, it is fit for a certain purpose, and is as near perfection as we can well expect.

The varnish intended for interior work, such as furniture and house fittings, may lack in the property of durability compared with a good exterior varnish but yet must possess a certain quality of this property or it will perish. It must be free-working, free-flowing, non-liable to cracking, and durable.

### High Lustre Varnishes

It must also possess lustre, unless a dead or rubbed finish is desired. Now, an extremely easy working and flowing varnish is not a high-lustre varnish, owing to the oil in it dulling upon becoming oxidized in the air. Hence the finishing varnish must have a goodly proportion of hard gum in it to make lustre, yet if too much be added, especially is this the case if the proportions regarding the liquids be not carefully observed, we shall have a too-hard varnish.

I have endeavored in this paper to indicate some of the difficulties attending the making of a good varnish, simple as varnish-making seems to be on the lay mind. I have said nothing about many other factors that enter into varnish-making, as it was not necessary at this time to mention them, my object being simply to make clear how varnish is influenced by its several properties acting upon each other and in conjunction with one another.

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Here is an Irish bull: "A landlord had been shot at, and the magistrate sent for the surgeon who had examined the patient. "Well, doctor can you tell us how many wounds the unfortunate gentleman has received?" inquired the magistrate.

"Three, your worship."

"Are any of them fatal?" proceeded the magistrate.

"Well, your worship, one of them is fatal, but he may recover of the other two if he remains quiet for a fortnight," was the surgeon's reply.

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### Eve's Apple

How many apples were eaten by Adam and Eve? We know that Eve 81, and that Adam 812, total 893. But Adam 8,142 please his wife, and Eve 81242 please Adam, total 89,384. Then again Eve 814240fy herself, and Adam also 8124240fy himself, total 8,938,480.

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### Making Indian Baskets

In his lecture before the Canadian Institute, Toronto, on "Arts of West Coast Indians," Prof. McMurrich exhibited and explained the making of Indian baskets, which he divided into two classes designated as "woven" and "coiled." The Salish Indians, he declared to be the best makers of these baskets in the world. Some of the baskets are water tight, being used by the natives for culinary purposes. The water is made hot by throwing stones which are first heated on a wood fire. The patterns on these baskets he explained to have a meaning, representing animals in most cases. At canoe making these Indians are very adapt and by a process of steaming the wood can make a craft with 5 foot beam from a log three feet in diameter.

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### Cutting Tool Steel With Circular Saw

Every other tooth in a new circular saw for cutting tool steel is a trifle longer than its neighbor, the long teeth making the centre of the cut and the short ones, which are thicker, gouging out the sides.

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The floor space of the wood-working shop in Montreal's Technical School is 6,811 square feet, and the machinery includes eight power wood lathes, four electric driven lathes of variable speed, one electric band saw, one buzz planer, one pony planer, one mortising machine, one tenoning machine, one drill, one shaper, two grindstones, one trimmer, one automatic band saw filing and setting machine, one knife grinder and one band saw brazer. There are thirty benches, with two separate sets of small tools each.

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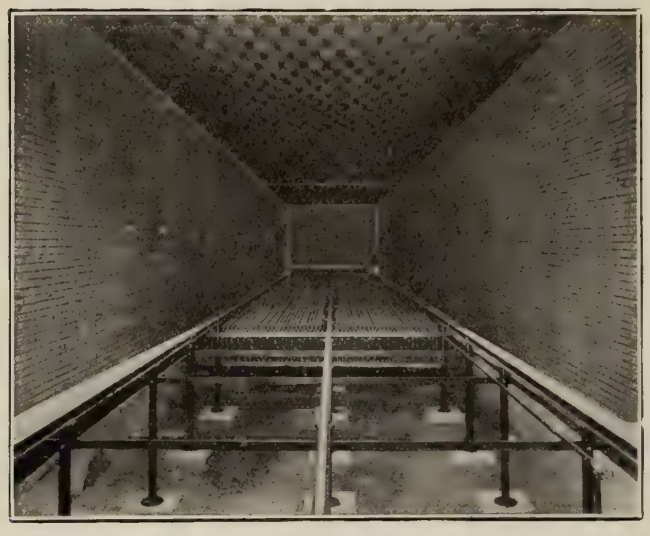
Cordwood made from sawdust and shavings is the idea of a planing mill man. The material is compressed by steel plungers into dies.

# A Modern Fire Proof Dry Kiln

During the last few years numerous valuable improvements have been made in lumber driers, and, no doubt, the one most important feature of these improvements has been toward the better construction of the building. As an illustrateion of the numerous improvements in building construction for dry kilns as well as improvements in heating and ventilating, this article takes as an illustration a battery of kilns recently completed for the Phoenix Furniture Company, of Grand Rapids, Mich., which were designed and installed by the Morton Dry Kiln Company, of Chicago, Ill. The Phoenix Furniture Company, one of the large manufacturers of high grade furniture, has spared no expense in securing for its exacting requirements a system of lumber drying as near perfect in every detail that could be had. The illustration shown by Fig. 1,



shows an exterior view of these kilns which consists of two rooms, each 106 ft. long and 18 ft. wide and 14 ft. high, and one room of the same dimensions for dry storage. Figure 2 shows an interior view of one of the kilns looking from the receiving towards the discharging end. The kilns are cross piling and progressive type, each room holding seventeen kiln cars. The walls are of brick with hollow air space and the roof is of fireproof construction, being made of hollow tile and reinforced concrete. Kilns are equipped at both ends with the improved Hussey Asbestos Patent Doors. One of the novel features of these kilns is the arrangement made for transferring lumber to dry storage room after it comes from the kilns. Lumber is loaded from the yard onto the kiln cars and passes through the kilns and when dried is taken out and transferred to the dry storage room where it remains until ready to be cut up at the factory. The storage room is equipped with tracks to receive the loaded cars and is also arranged to be heated in order to keep the dampness away from the lumber. It has been found in order to handle kiln dried lumber successfully after it comes from the kiln that a dry storage room is very nearly as important as the dry kilns. Lumber should not be cut up as soon as it comes from the kiln, but allowed to stand and temper, and a further advantage of having a storage room is that several kinds and thicknesses of kiln dried lumber can be carried and be available at any time for use in the factory, and especially is this an advantage to a manufacturer using a great variety of different kinds of lumber, as well as different thicknesses, as it cannot always be arranged to have lumber come from the kilns in the order that it might be desired for immediate use. The storage room referred to above is arranged with transfer car in the center of it, as well as at the end, to facilitate moving a car of lumber from practically any portion of the storage room. The unloading end of the kiln, as well as the transfer system at this end, is enclosed so that after the lumber once enters the kilns at the loading end it is not again exposed to the outside atmosphere until manufactured into furniture ready for shipment. The dry kilns are arranged with the Morton down draft vertical system of ventilation and storage room is also equipped with the same system. Piping system in the kilns consists of a double layer of pipe of the improved graduated system and are heated with exhaust steam at one to two pounds pressure and with a gravity return, the condensation being returned to the boilers by means of an automatic pump and receiver.

The inside of the brick walls as well as the roof are coated with waterproof paint. Spray jets are located at the loading end of each room, which are used for providing the desired amount of humidity at this end of the kilns to soften the lumber and open the surface pores before the drying is commenced. This is only one of the many recent installations put in by the Morton Dry Kiln Company. They have also just completed kilns for the Imperial Furniture Company and John Widdicomb Company, Grand Rapids, Mich. They have also installed two kilns for the United States Government for the Rock Island Arsenal. A

number of foreign inquiries have been received and sales have been made in Durban, South Africa; Glasgow, Scotland, and quite recently in Sydney, Australia. To anyone interested in the matter of dry kilns and modern fireproof dry kiln construction, they will be pleased to mail their complete catalog "W," by addressing them at 206 South La Salle street, Chicago, Ill.

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Good machine work does not consist merely in setting up machines so that they will do their work smoothly and with reasonable speed. There must be taken into consideration the matter of dimensions of the work, and due care should be exercised that stock made to-day that is of the same pattern of stock made yesterday or last week, is of exactly the same dimensions. This is just as essential a part of good machine work as proper adjustment of knives and other running parts.

# Improved Cutter Heads and Thin Steel Knives

### An Improved Cutter Head

The race for supremacy among the makers of fast feeding flooring machines is bringing out some speedy matchers. To keep a little ahead of the procession where the Shimer Cutter Heads have always led, and to put in the hands of the mill man a safe and efficient tool for this fast work, the makers have put on the market their new "Shimer Limited" Cutter Head.

In appearance this new Head resembles their older patterns, but differs therefrom in the method of attaching to the spindle; in the construction of the bit seats; of the bit designed for faster cutting; in the greater strength of the holding bolts, and in the self-centering device which clings to the spindle when drawn up, securing it firmly thereto.

To match flooring at the rate of 150 to 200 lineal feet per minute requires side heads of undoubted strength to withstand the enormous centrifugal strains. They must be designed right, materials must be the best obtainable and they must be manufactured with care.

The "Shimer Limited" Cutter Heads are made from solid steel forgings. They are carefully balanced and the bits are jointed to insure all of them doing their share of the cutting. The bit sets carry a larger areal surface and the bit chambers are of greater depth to compensate for the new acute angle given to the bits for greater relief to the parts coming into contact with the lumber.

These new tools have eight bits to each head fastened with the strongest designed and toughest holding bolts that can be constructed. The spindle gripping device is positive and effective in its purpose of holding fast to the spindle, as also in centralizing the head.

These tools must be seen at work to be appreciated. Like all Shimer products they are sent on trial, returnable if not satisfactory. Send for a set and give them a try out on your fastest machine. Address Samuel J. Shimer & Sons, Milton, Pa., or Galt, Ont.

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### Double Your Capacity

How to increase the output of his mill without a large expenditure of money is a problem which often perplexes the average mill man. He realizes that under existing conditions he should have an added output to enable him to successfully meet competition. He, however, feels that he can not at this time invest in new machines, much as he needs them.

It is to such a man that the Shimer Double Ceiling and Double Flooring Heads should appeal very forcibly. By their use the capacity of a matcher or moulder may be doubled. The stock is run with double tongue and groove and then re-sawed into two marketable strips. The bits on the Shimer Double Heads mark the saw cut line of division on the stock; so that the sawyer can at once detect any variation of the saw and correct it as the board is passing through.

These heads are no experiment, but have been on the market long enough to be in use in a large number of the best mills in this and other countries. They will be found to be very complete and practical tools, carrying the Shimer guarantee to do as represented or no sale.

As an investment of $33.08 and upwards will give you about 100 per cent. gain in output, why not send to-day for full particulars in reference to these tools? Address Samuel J. Shimer & Sons, Milton, Pa., or Galt, Ont.

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### Thin Steel Knives

To use thin steel knives or not to—is a proposition that comes to the mind of every progressive lumberman at this time. The facilities offered by their use are no longer an experiment and those who are willing to retreat from the march of progression will show their adherence to old fogy ideas with all the defective methods accompanying.

To tear loose sometimes requires real courage, but usually such show their progressive spirit and compensate by the early advantages to their complete satisfaction.

Naturally, the reader may hesitate owing to the varied methods of using the thin knife.

Some advocate the use of a square head with thin knife and spring steel back, where as others purchase complete heads of which there are a variety to select from, especially suited to the use of the thin steel knife.

It matters little which of the methods now in vogue may be adopted, because they all show especially advanced ideas for the planing and surfacing of lumber. There is one point, however, of particular interest and that is relative to the kind of thin steel knives one adopts.

Many makes of these knives may be found with varying degrees of merit, but those which are especially useful and making particular claim to superiority are the Bedee Knives manufactured by Samuel J. Shimer & Sons, Milton, Pennsylvania, and Galt, Ont., to whose product this journal has frequently referred in the past twenty years.

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### A New Type of Oil Engine

A new German type of oil engine is built to run with liquid tar as fuel, and is said to work very successfully. One of the large gas companies had the engine designed by the Korting establishment in order to see whether such tar coming from coal distillation could not be used to operate an engine. The present engine is built for 100 horse-power and was tested by coupling with a dynamo. Starting and heating up in the first place are done by the use of paraffine oil. The engine was run on a 66-hour endurance test, carrying a two-thirds load, and after the trial it was fould that the valves and the other parts were very clean and there was no deposit such as might be feared inside the engine. A very regular running was also one of the good points observed. Following this successful test, there are to be built engines of much larger size which are to give 600 horse-power. It is found that the full value of the tar comes not far below that of paraffine oil for the same weight.

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You would doubtless be surprised if you knew what the people you sneer at think of you—if they ever give you a thought.

# New Safety Device

### An Aluminum Saw Guard

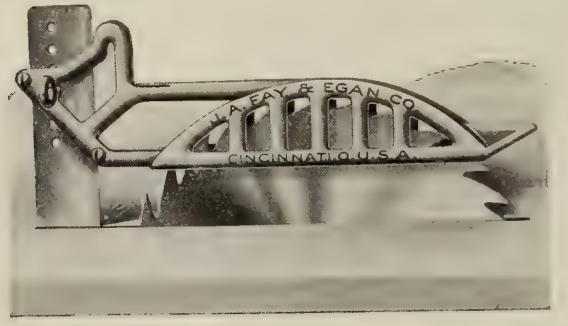
Herewith is shown a photograph of a new idea from the J. A. Fay & Egan Company. It is a new guard made of aluminum.

That this guard is the most efficient safety device made for circular saws is evidenced by the large number already in use, although it has been one the market only a few weeks.

The hood being made of aluminum, is very light and does not interfere with the operation of the saw, nor mar the work in any way. Neither will it damage the blade should the hood by some accident be forced against it.

The protection afforded is perfect, the guard complying with all safety appliance laws in every respect.

The guard is mounted on a steel standard set into a plate which is countersunk into the table. The standard is easily removed, while the hood is quickly set for various thicknesses of stock or can be thrown when not required.




This guard affords protection not only to the operator, but to the manufacturer as well. The laws of practically every province now make it obligatory to use saw guards and where none are provided there is no defence against an action for damages for injuries sustained by the operator.

Now that there is made a really practicable guard, one which affords the needed protection without decreasing the efficiency of the operator, there is no excuse for not applying them to every circular saw. It is a case where a few dollars invested now is an insurance against a loss of thousands of dollars later on.

For further information in reference to these guards, application should be made to J. A. Fay & Egan Company, Front street west, Cincinnati, Ohio.

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### Industrial Accidents in January, 1912

There were 86 fatal and 214 non-fatal industrial accidents recorded by the Department of Labor during January, 1912. This is a more favorable showing than in the corresponding month of 1911, but less favorable than i nDecember, 1911. Twenty-three men were killed in the railway service and fourteen in mining. Of the non-fatal accidents, the largest number was also in the railway service, namely, fifty-six, and the second largest in the metal trades, namely, 51. The most serious disasters of the month were the derailment of a wrecking train by a snowslide near Revelstoke, B.C., in which a brakeman and three sectionmen were killed, and a premature explosion of dynamite on Canadian Northern Railway construction work north of Nipigon, Ont., by which two laborers were killed and five injured. A fireman and a brakeman were killed in a head-on collision near Barwick, Ont.

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### Dangers Arising from Unguarded Machinery

Unguarded machinery is, up to a certain point, dangerous to operators, apart from the fact that some of the latter are capable of coming to grief however complete and efficient the precautions may be, but these must be left to the mercies of the insurance companies, who have done so much to minimise the terrors of the Workmen's Compensation Act.

In timber conversion machinery and plant, however, there seems to be no getting away from the fact that, even with the most careful and reliable of operators, there are some tools which will nip off a finger or two in the most subtle manner, and to obviate this possibility efforts of the most determined character are now being put into execution.

By way of assistance, a comprehensive warning notice has been issued by Mr. Clarence Brewer, 66 Leadenhall street, London, E.C., which is arranged to be attached to or hung up near by every tool in the shop, stating that—

The machine is equipped with a guard.

The machine is not to be used without the guard.

If the guard is not considered efficient the defect is to be reported

No unauthorized person is to interfere with the machine.

There is to be instant dismissal for anyone who omits to obey the instructions.

On the back of the warning card are to be found illustrations of the most modern and efficient forms of guards.—Timber and Wood-working Machinery Journal.

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### Sash Windows

The history of sash windows is somewhat obscure, but the probability is that they were a Dutch invention and that they were introduced into England soon after the revolution of 1688. The derivation of the word "sash" in this sense is the Dutch "sas," a sluice—old English "sasse." In Queen Anne's reign they were yet so comparatively uncommon as to be mentioned as a special feature of houses that were advertised as "to let." In the Tatler, for instance, No. 178, May 27-30, 1710, there is this advertisement:

"To be lett, in Devonshire Square, near Bishopsgate, a very good Brick House of 3 Rooms of a Floor, and a good Hall, with very good light and dark closets, the whole House being well wainscoted and sash'd with 30 Sash Lights, a very pleasant and convenient Office below Stairs," etc.

From England they passed into France, where the first to put them up was Marshal de Lorge at his new house at Montmartre. Speaking of this, Lister in 1699 writes in his "Journey to Paris:" "We had the good fortune here to find the marshall himself. He showed us his great sash windows, how easily they might be lifted up and down and stood at any height, which contrivance, he said, he had out of England by a small model brought on purpose from thence, there being nothing of this poise in windows in France before."—London Standard.

# Making Glue Joints on the Rip Saw

### Rip-sawing Considered as a Fine Art

By X. Y. Z. in Wood-Craft

I have been about twenty years in mill-room practice on organ and player-piano actions and a constant reader of papers on wood-working, but have rarely seen anything on fine rip-sawing that was of much value to men working in our line of work.

Now the above is the title of an interesting in Wood Craft. It appeals to me for several reasons.

### ... ... .Saws that Supersede Sanders

I am now in charge of an action mill-room and a glue-room in one of the large piano concerns in the United States and I have had considerable experience in getting out such work and gluing it up so that I know very well that it is not out of place to call fine rip-sawing a fine art.

Making glue joints, and sawing the small parts of an organ or player action so smooth that they do not have to be sandpapered or planed before varnishing or shellacking, is very fine work.

It is done, however, in my department, and I think probably in all other similar places.

Now a few suggestions to beginners in this work may be very helpful to some young man who is having a hard time of it in a place where the old hands may be unfriendly. I will tell exactly how we do the work.

Let us begin as though the saw-table and the speed were perfectly adapted to the work. If they are not so adapted, the best saw fitted up in the best way known to the art cannot give the results we desire.

The manufacturers will tell you to run a 10-inch saw for this work at a speed of from 4,000 to 4,500 revolutions per minute. So they ought to run. We, however, are running about 25 per cent. less. But saws for such work should run from 8,000 to 10,000 feet per minute at the rim at least. And when ordering saws for this work state just what they are to be used for.

Now I use an 8 to 10-inch saw for this work, mostly, though I have one 15-inch saw that cuts beautifully. They are 14 or 16 gage-saws. If the superintendent won't speed up get the thicker saw of the two.

The teeth of my saws are one and two points to the inch and cut about 5/16-inch deep in the gullet.

Now let us start A out with a new saw that has never been filed nor set. (I ask the makers of our saws not to set my saws. They set the mtoo much for our work, and it requires a lot of filing to take it out.) First, set this saw about as you think it should be for your work.

Do this carefully, setting every tooth just so much. It is better to have to set it twice than to overdo it the first time. The least set that is possible with free running is in every way best.

Second, put the saw on the arbor, always in exactly the same way by some mark you have on it, and "top it off."

### Topping Off the Saw

To do this is a nice little matter. Move the saw or the table top till the top of the table and the points of the teeth are in line with each other. Set the saw running, take a smooth block of wood and move it over the saw on the table, raising or lowering the saw or the table until the teeth scratch this block slightly. Then take an old and hard oilstone and pass it over the teeth and cut them all down to the top of the lowest tooth on the saw. Don't touch the lowest teeth much, for if you do you will probably have a lot of filing on most of the others.

### Saw-filing for a Fine Finish

Then file your saw. In doing this you may do well, if there is much to come off, to first use a file that has been used before and save a good new file for the finishing cut.

File straight across the front of the tooth, and straight across the top, holding the file as level as possible. A rip-saw requires a chisel-shaped tooth. Any other kind, especially if it is long and cuts deep, will be troublesome.

Sometimes it is necessary to file a new saw three times before getting it into perfect shape. Some new saws have the points of the teeth very poorly formed. I top off the saw each time I file it when putting a new one in shape. After that it may be used longer if one is careful to file each tooth carefully.

But follow this order in fitting up fine saws; first, set the saw; second, top it off; third, file it.

If one files a saw properly, then sets it, he throws his filing off by just so much as he changes the tooth when he sets it.

Now with a saw fitted up this way I am trimming maple pieces, 2½ by 2½ inches by 3 feet long and veritable bones for hardness, so smooth that they are neither planed nor sanded before given a coat of shellac.

I have laid a piece of this work in a visitor's hand, saying, "Here is some of our sawing," and then have had him say: "Sawing! This was not sawed was it?" When I said it was sawed, he would squint first at me, then at the wood, feel it over, squint again, and exclaim over its smoothness.

We are now sawing the fronts of a little motor valve, a piece of 2½ by 2/ by 1/16 inch thick mahogany, used where it is especially finished to please the eye, so smooth that it is not easy to tell which way it was run by the saw, and it is ready for the shellac without further smoothing. I am mailing such a piece to Wood Craft with this article.

Any good action sawyer will do such work if the stock is properly seasoned so it will not close in toward the saw and get scratched that way when being sawed.

The foregoing comments refer to general work with the rip-saw in such places as I speak of.

Now in making glue joints with the rip-saw I have practiced for years on everything up to five feet in length on the very most particular work imaginable. The saw is fitted up exactly the same as for general work.

The glue joints in an 88-note piano-player or in an organ action must be perfect. If there are any leaks they noticeably affect the playing and if the joints are poor they will be affected by changes in the atmosphere.

Here I now submit a few remarks in general. I use an old oilstone for topping off saws rather than a piece of emery wheel because the emery scratches the top of the saw-table.

Continued on Page 20

**One Million Feet of 7″, 9″ and 10″ Wide Pine at $21.50 per Th**
**One Million Feet of Pine Shorts - - - - at $17.00 per Th**

**Cost of joining shorts by Linderman method into any size one piece ends, sides, tops, or bottoms, per thousand board fe**

**One Million Feet of Pine Shorts, Joined by Linderman Method**

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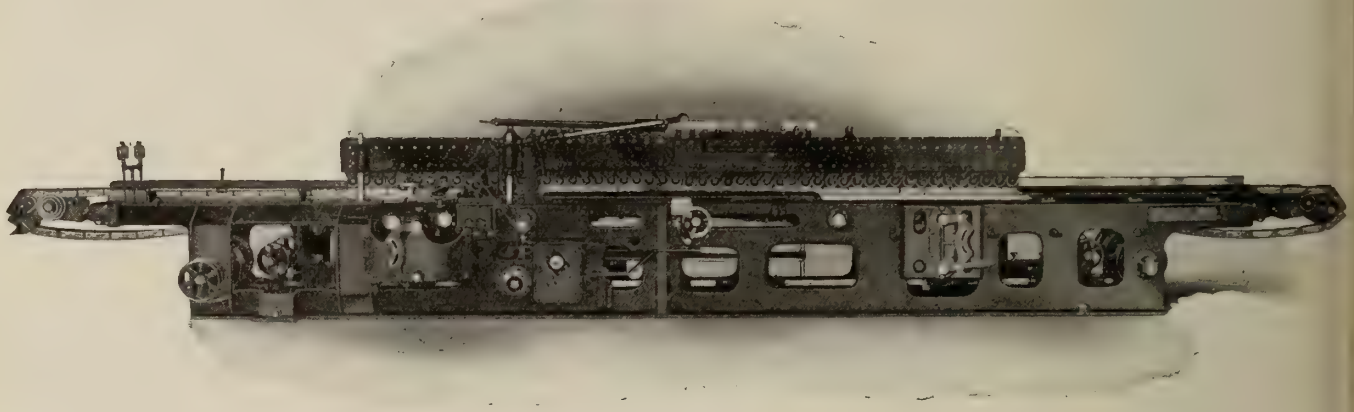
## Annual

# Linderman Automatic

## from Two to Three



This saving, and the fact that it is annually, was one —and in truth—the leading inducement, for one of the large Canadian Box Factories to order a 12-foot Linderman Auiomatic Dovetailer.

The saving does not stop at the above figures. When you look at your immense edging waste have you ever wondered how it can be reduced? The Linderman method can help you.

When you figure that 1000 board feet yields you only 750 feet of matched shooks, have you asked yourself, can it be bettered? It can be; the Linderman method does it.

What is the Linderman method? It is simply common sense,—the joining together of several pieces of edge length lumber, of miscellaneous widths into a panel which is several inches wider than the width desired. This piece is then passed through a sizing saw, ripped to width and the edging which is several inches wide is passed back through the Linderman Dovetailer and joined to another panel.

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# Canadian Linderman

| | |
|---|---|
| d. Last Year's (1911) Average Price - - - | $21,500.00 |
| d. This Year's (1912) Contract Price - - - | $17,000.00 |
| es from 50 cents to 75 cents per thousand board feet. Saving, | $ 4,500.00 |
| 00 per Thouand Feet Costs - - - - - - - | $ 1,000.00 |
| Total Net Saving, | $ 3,500.00 |

ity of a

# ovetail Glue Jointer

## on Feet Board Measure

### The Results Obtained are:-

A composite panel of the required width made up wo or more pieces so firmly joined together as to make ce as strong, or stronger, than one-piece stock.

The ability to use narrow width lumber, working cheaply as to yield a profit of several dollars per 1000 d feet over any other method.

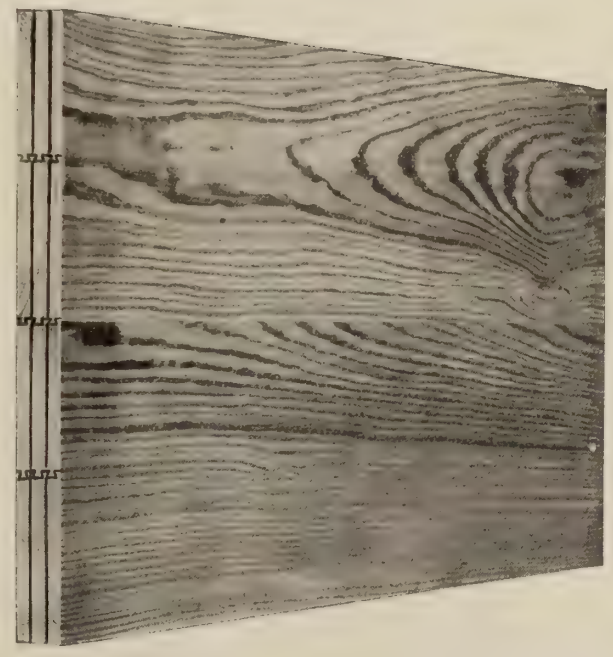
Effecting a considerable saving in the edging e, reducing to a minimum the waste of lumber to make ongue and groove.

Reducing the amount of stock lumber in the yard e various widths, so absolutely essential by the old od, making a saving of money invested in stock and est on the investment.

Conservation of all resurces, capital, labor and er.

Improving the appearance and bettering the quality ur finished product.

Profits—known and accessible.



# mpany, Limited

WORKS AT
WOODSTOCK, ONT.
MUSKEGON, MICH.

If one is sawing maple and runs into a hard spot, a sand bar, he should sharpen his saw at once. If he does not do so he is sure to draw the temper of the teeth and afterwards they will not hold an edge. Don't keep on sawing because it saws "pretty good."

### Tops and Sides of Saw Teeth

In topping off saws be careful about two things. First, top them off enough. Sometimes it will be found that the sides of the points of the teeth are worn bright, showing they are dull like the fronts and the tops of the teeth. This is sure to be the case if one runs into black spots in maple. So top off enough to take the little bright spot off. Second, stop right there; for, if you do not then quit, you will have unnecessary filing to do.

Do not run a saw "as long as it will go." It takes a long time to fit up a saw after it gets out of order. Further than this, one is apt to heat and spring the saw, then he might as well say farewell forever to any more real comfort with that tool. The fun is really over. And it is fun to saw with good tools. I like it.

Then there is another thing to consider. If one runs a saw too long and gets it very dull he feels he must bear on hard in filing, as it is natural to do so, and hurry up the task. This on fine work is bad, for it forces a stiff burr out on the side opposite the filer and this scratches the surface considerably on soft woods.

The file is also apt to be abused and the good cutting of that tool be spoiled entirely. In most shops the management is rather careful about supplies furnished its men and it is well to use files carefully so as to have a good one for finishing saws for particular work.

So file often and file lightly.

For cutting off stock where smoothness is not required a saw fitted up as for ripping will work excellently. But the teeth must not be longer nor deeper cut, than is here suggested.

### Oak as Adapted to Cooperage

The buyers of cooperage stock raise two points, in which they claim red and white oak differ as to adaptability for their specific purpose. One of these is in the structure of the wood and the other in the sap. The sap of red oak timber possesses certain properties which are at variance from that of the white oak, and even among the different species of white oak there seems to be considerable variation. The most discriminating buyers in the foreign market are insistent upon the delivery of a certain species of white oak, claiming that they get from it those acids or qualities of sap which best combine with the liquid contents of the packages to effect the most desirable coloring and flavoring of the beverages. The wood structure itself is, however, of prime importance, and it is this characteristic which makes white oak more desirable than the red variety in the cooperage industry. Red oak is more porous and, as a consequence, greater difficulty is experienced in properly filling the pores with glue or silicate to render the wood impervious to moisture. The glue seems to penetrate right through. While it is probable that some day a filler will be put on the market which will successfully overcome this difficulty and that chemical coloring and flavoring of beverages will be more highly deeveloped, still at present white oak is in far greater demand for most kinds of packages to contain liquids of any value.

### When Tensioning Bands

A reader of Simonds Guide asks the followin:— "How do you arrange your hammering bench to get good light to use double gauge concave and convex, as that is what I use in tensioning and endeavor to have blade fit both ways, but had trouble in getting proper light. I have a wooden roll placed 2½ feet back of stretcher, and spring saw over this; it is on a level with stretcher, but stretcher shuts out the light. Occasionally I find a place in a saw that is free of a lump; at least straight edge does not show one on either side of plate, and it only fits one edge of double tension gauge. What is the cause of that condition? Do you use pressure on your tension gauge?"

Now, in our answer sent from the Simonds factory, we say in part: In tensioning saws we always aim to have the saw running underneath the leveling block instead of overhead. This enables the man at the bench to get at his work more conveniently and is practically the short cut to the tensioning proposition. We note there is a window opposite the stretcher and where you do most of your springing. In springing a saw we would advise that you cut out this light opposite your stretcher and have as much light in front of you as possible. This may be done by the aid of shades over the window to be drawn when necessary.

We have arranged the stretcher at the extreme end of the leveling block or bench. This we find is a very convenient way of tensioning saws and gives a better light, or, in other words, cuts out the stretcher as you have it now in front of your work. In using the convex level we always spring under pressure, and not lightly. In using the concave level, you spring your saw down with the left hand over the anvil, which enables you to see most any spot or fast place that does not fit the concave.

The reason your saw does not fit the double tension gauge both ways, when it is flat with the straight edge, is no doubt due to the fact that you are not springing your saw under enough pressure. You evidently can get more tension downward when you are using the concave straight edge than you can wheen you spring upward using the convex straight edge.

We are always glad to answer to the best of our ability any technical questions which you may wish to refer to the Simonds factory.

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Many a woman gets what she wants by saying that she doesn't want it.

And lots of married men act as though they wished they were widowers.

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Customer—Say, I found a nail in one of them cigars I bought here.

Dealer—Oh, yes! It must have been one of our prize Havanas. Some contain diamond scarfpins and some nails. You just happened to strike a nail.—New York Mail.

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No matter how well I may do a thing to-day, there will be a better way of doing that thing to-morrow.

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It's a good plan to assume that the builder of a machine knows a little about it and that it will pay to follow his instructions, at least till you have found a better way. If any directions seem complicated, it is a safe bet that there is a reason for it. No sane builder wants to make it any harder than necessary to learn how to operate his machine.

# Noticed on the Editor's Travels

## Builders Create New Departure—Getting The Best Results From Leather Belts

What might be considered a departure, so far, at least, as Canada is concerned, is the installing of wood-working machinery right on a building job. An instance of this is to be seen in the new West End Y. M. C. A. building now being erected on College street and Dovercourt road, Toronto.

The contractor, Mr. Hall, has installed on the premises a gasoline engine which supplys the power to run the hoist and also drives a swing cut-off saw. In another part of the building there is a universal wood-worker driven direct by a gasoline engine. With the aid of these machines much of the work usually done in the mill is now being done right on the job. The universal wood-worker, as its name implies, is capable of a very wide range of work and is easily adjusted. This enables the machine hand to prepare the material required for window and door frames and other work that would otherwise have to be done by hand or in the mill.

While it is true that small universal wood-workers with direct motor drive are in use in outside construction work, there is, so far as the writer knows, but one other contractor who has, as yet, the heavier type of machines mentioned. And it is only reasonable to expect that the example set will soon be followed by others.

This should gladden the heart of the manufacturers of wood-working machines as it will undoubtedly increase the demand for this class of machinery.

It should also gladden the heart of the carpenter who will be relieved of much of the heavy and tiresome hand work.

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### Matched Material and Stock Mouldings

Since the Canadian Woodworker took up the subject of the standardization of matched material and a revision of the moulding catalogue a number of letters have been received enquiring as to how the movement is progressing.

Replying to our correspondents we have said that it will take two or three months to bring these much-needed reforms about. The revision of the moulding catalogue will take the most time. Patterns will have to be decided upon, cuts made, then the book prepared and printed. It will probably be two months before this matter is brought to a successful issue. However, it is with great pleasure we note that a concerted effort is now being made to this end.

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### Machine Men Like to Work to a Template

Men who work in mills where the matched material and stock moulding are run to fit a template which is an exact duplicate of the one in use in other mills, like the system. It puts them on their mettle, as it were, knowing that their work will have to member with that run by some other man makes them careful when setting up. Working to a template is the only sure way. There is no hit or miss about it. None of that "this will do this time," or "that is near enough." They know their set-up must be absolutely perfect.

### Why Not Pay Men for Suggesting Improvements?

The custom of paying employees for ideas and suggestions is confined chiefly to railway companies and large manufacturing establishments employing a considerable number of hands. The system is an excellent one and there is no reason why it should not be adopted by smaller concerns.

There are many carpenters and machine hands—as well as others—crammed full of bright ideas which they would willingly part with for a cash bonus.

Practical ideas are worth paying for and it will be found that the bonus system is the best method of reward, especially in shops and factories where a flat rate of wages is the rule. To increase the wages of a man who suggested an idea that proved feasible might, under these circumstances, give rise to friction, and ultimately lead to trouble.

Promotion as a reward has merit, of course, but the one to whom the reward is due might not feel inclined to accept promotion, prefering instead the ready cash.

The reason so comparatively few good ideas come from the men direct is that in a number of cases men have pointed out to the superintendent or foreman that by performing an operation another way a certain article could be produced not only cheaper, but much better, and have them pooh-poohed at, and told to mind their own business. Later on they have seen their ideas and improvement introduced by the man who did the pooh-poohing. Naturally a man resents this treatment.

A good way, and one that would safeguard the men's interest, would be to have in each place of employment a suggestion box in which the men could place written suggestions, accompanied by plans if necessary. These should be addressed to the manager or to the head of the firm, and if found feasible a certain sum, depending of course on the merits of the idea, should be paid to the man who conveyed it.

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### Are We Getting the Best Results from Leather Belts?

The question always prominent in the minds of leather belt users is, are we getting the best results from our belts, or are we not, and for the benefit of those who are not, we trust the following information may be of some value.

Always use great care in selecting your belts, see that the leather is not too hard or too soft, if it is too hard it is liable to crack, if too soft it will stretch, therefore the idea is to select a firm, pliable piece(genuine oak tannage always preferable) so that these troubles will be removed, and to fasten same in a secure manner.

On pulleys smaller than six inches in diameter run flesh or rough side to pulley, on those over that diameter run grain or smooth side to pulley; after a great deal of experience this has been found to give the best satisfaction; also see that your pulleys are lined up perfectly on shafting and machines, whenever possible it is always best to have belts made endless (any competent belting firm can do so) as it is the most satisfactory way of eliminating breagage,

and leaving a smooth surface for running over pulleys. If this method is not practical use a good leather lace, taking care to have both ends of belt perfectly squared, and not to punch too large a hole or use too large sized lace, as belt is liable ot tear out at joint. Commence lacing at centre, working to each side, thence back to centre, finishing with knot on side from pulley. If metallic fasteners are preferred use care in selecting some brand that can be re-used, in case of stretch or breakage.

In taking care of belts, remember that they will need a dressing of some kind. If used in a warm dry place they will become hard, then it is best to use castor or neat's foot oil, applying with rag sparingly until belt has had time to absorb a sufficient quantity to make it soft. If belt is rather soft and oily use a hard dressing, which will form a surface to belt, thereby preventing superfluous oil from soaking into the belt.

Should these few instructions be followed the life of belts will certainly be greatly prolonged.

## YEAR STARTS WELL

### Building Permits for January Represent Large Expenditure in Toronto

Building permits issued by the City Architect for January, 1912, represent an expenditure of $774,165, as compared with $458,380 for January, 1911. There were 142 permits issued for 222 buildings, as compared with 137 permits for 176 buildings in January, 1911.

### Big Building Year in Hamilton, Ont.

The seventh city in Canada in building operations is the position occupied by Hamilton. According to statistics just compiled by the city officials, the value of buildings of all kinds constructed here last year totals $4,255,730. This was an increase of 38 per cent. over the record for 1910. The cities which lead Hamilton are: Toronto, Winnipeg, Vancouver, Calgary, Regina and Montreal. The year of 1912 will be the biggest in this line of activity which this city has ever experienced, more than $3,000,000 worth of manufacturing structure already being under way. With the dwellings and stores which must necessarily be put up, and with other factories which are expected to locate here during the present year, it is more than likely that at least $6,000,000 will be added to the value of Hamilton's buildings before the end of the year.

### One House for Every Three

For every three newcomers to Vancouver during nineteen hundred and eleven Vancouver built a home. Some 2,700 permits for buildings were issued at the City Hall during the year. For the first eleven months building permits reached $16,000,000, being nearly $3,000,000 in advance of the record for nineteen hundred and ten, and $15,000,000 in advance of the record of ten years ago.

On January 1, 1912, it was announced that the building records for the past year reached $17,000,000.

During the ten years from 1902 Vancouver spent on buildings $60,182,613.

Buildings to the value of $1,500,000 were erected at Point Grey during the last half year.

Perhaps a man has more temptations than a woman, because he knows just where to look for them.

### Ancient Architecture

Herr Knauth, the architect in charge of the Cathedral of Strassburg, has shown that the principles of construction followed by the great cathedral builders of former times are identical with those used by the builders of the Egyptian pyramids and are based on triangulation. The same simple geometrical figure underlies all these constructions. More than this, Herr Knauth traces the architectural principle in the formation of crystals and lays down this formula "The laws of proportion in medieval architecture are the geometrical laws of crystalization."

### New Idea in Building

A New York architect is just now preparing plans for a building to replace the old Atlantic Garden, on the Bowery, just south of Canal street.

The plot, 100 by 200 feet, will be occupied by a fireproof loft building, with extra wide fire escapes of the same size as the interior stairs, and with landings, but no turns.

The plot facing on the rear (Elizabeth street) will be a six-storey model tenement house, entirely devoid of interior stairs and halls, the means of egress and ingress being from outside stairs in an interior court.

### Durability of Green Heart Timber

Green heart timber from British Guiana was used in the construction of the 50 large pairs of lock gates in the Manchester Ship Canal. Practically all the lock gates of the Bridgewateer Canal, and for the past fifty years all the dock gates in the Mersey Harbor have been built of that wood. It is being extensively used in the new naval docks at Methil in Scotland, and it has been specified for use as sills and fenders in the lock gates of the Panama Canal.

The durability of green heart is well known. A leading authority says that it is hard to fix a limit to the durability of lock gates built of green heart; the only element in their construction limiting their age is the iron bolts and other fastenings, which are usually renewed without serious difficulty. It is said that in rebuilding the gates of the Canada dock in 1894 it was found that the green heart, after thirty-eight years' use, was as good as at first, and it was again used in the construction of the new gates.

Every wharf in the port of Georgetown is built on green heart piles, which successfully withstand the attack of the pile worm. Arthur J. Clare claims that teak and oak or any other hardwood would be destroyed in a few years, and that the immunity of green heart from the teredo is said to be due to the large quantity of the alkaloid bebeerine found only in this wood.

### Toronto Police Census

A police census of Toronto taken last month gives the city a population of 425,407. As this is about 50,000 more than shown by either the Dominion census or the assessors' census, the Toronto police appear to have been industrious.

It doesn't require an earthquake to shake our faith in some people.

Of all human virtues, the world is apt to regard success as the greatest.

### In the Small Job Shop

That men fail in running small job shops is not so often due to inferior workmanship as to inaptness at mind-reading, the inability to tell, from what a customer says, what he wants. A few can express their wants literally and exactly, but very many cannot.

One of the most educative jobs I ever did was was for a lady who, in the days of my apprenticeship, ordered of me a set of shelves for her cellar. She wanted "just rough boards, roughly nailed together." She got exactly what she ordered; but I think she put in the better part of the balance of her life ridiculing that job. It was a bum job, not on account of my inability to do a better one, but on account of my failure to realize that her desire to get a low price led her to lay more stress than she realized on the roughness desired.

There is always a tendency in this direction, though but few intend to deceive. Most people, through a perfectly natural desire to get their work done as cheaply as possible, and through ignorance of mechanical terms and values, will order a cheaper job than they really want.

It is not true that one should always put his best workmanship into a job, for the successful jobber does his work, as nearly as may be, in the way his customer desires. If a woman wants a box to cover with cloth, it would be absurd to put in the same material and workmanship that one would if it were intended to be decorated with burned work. It is doubtless better to err in the way of doing the work too well than to turn out an unworkmanlike job. A good job is always a standing advertisement and exerts a "pull" long after the price is forgotten. Of course, one cannot afford to do work at a loss, even for advertising purposes (he will get enough of that sort of thing unintentionally); but if he cannot afford to do a reasonably good job for the price to be had, better turn it away. Reasonably good work does not mean putting a piano finish on a wash bench, but rather workmanship and material adapted to the requirements of the job.

'Tis an interesting game, after one gets in the way of it, to study the personality of each customer and to decide, from what he says, what he wants. It is comparatively easy to do satisfactory work for a mechanic, who knows what he wants and how to tell it, but it is a different matter to satisfy the average man or woman. It takes a good mechanic and a good judge of character to win the best two out of three at the game.—Exchange.

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### Pays $900 for Bridal Chest

An old painted leather trousseau chest of the Elizabethan period that once was one of the treasures of Warwick Castle, has been sold to a Cleveland woman by a New York antique dealer for $900. The stand and chest are about six feet high and many a bride of a Warwick earl has packed her flimsy laces in the chest that now is green and gold with age. The old oak stand is almost as black as ebony. The piece of furniture was presented to Lady Stewart in 1815. She kept it for many years, but finally parted with it and several other antique pieces of furniture.

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In return for the white pine, the Douglas fir and the black walnut, Europe has given North America the Norway spruce and maple and the Scotch and Australian pine.

### An Opening for a Woodworking Plant

It is stated that there exists at Kindersley, Saskatchewan, a first-class opening for a small but well-equipped wood-working plant, capable of turning out the contractors and carpenters' supplies required there. The town, which is now about two years old, is a divisional point on the C. N. R. Saskatoon-Calgary line, has a population slightly in excess of 800; there are no competing towns within fifty miles in any direction, and no wood-working plant nearer than Saskatoon, 125 miles distant. The town is the centre of a thickly settled district, and a great deal of construction is going on. Anyone wishing to work into a good business and willing to start in a small way, would do well to write the Secretary, J. D. McLeod, of the Board of Trade, Kindersley, Sask.

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### New Lumber Company Incorporated at Ottawa With Capital of $250,000

The Canada Timber and Lands, Limited, has been incorporated, under letters patent, with a capital stock of $250,000, and head office in Toronto. The incorporators are: Thomas Long, Lauchlan A. Hamilton, Allan R. Davis and Elihu Stewart, of Toronto, and James Playfair, of Midland. The company is empowered to carry on a general lumbering business.

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### Company to Search the Lakes for Logs

Under the name of The Ontario Salvage Company a number of Ontario lumbermerchants have made application for a charter permitting them to raise and offer for sale sunken and stray logs.

Every yeear for many years hundreds of logs have broken loose from the immense booms in which they are lashed for transportation, on the large lakes of Ontario, strayed away and never been recovered. The aim of this company, which comprises only a few of the big timber merchants operating in this province, is to collect these strayed logs, many thousands of which lie in little inlets and bays around the shores of the lakes, and especially of Lake Superior, and make them into booms and offer them for sale. Owing to the present high price of timber, the company expects to make a small fortune out of this salvage.

The special sphere of operation of the company, the capitalization, or the directorate of which has not yet been disclosed, will be the Georgian Bay district, mainly in the line of the boom traffic from the upper end of the bay to Point au Baril. In case logs other than those owned by members of the company are raised, same will be returned to the company claiming them within thirty days of raising, provided that the ownership of logs can be fully proved, a very difficult thing to do.

The company in addition promises to keep the boat channels open and to remove stray logs from the usual steamer channels.

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### Paris May Get Industry

A representative of one of the largest motor truck companies of the United States was in Paris recently looking over the town as a possible site for the establishment of a branch factory. The Publicity Committee of the Board of Trade took the gentlemen in hand and showed him what advantages the town had to offer. He was very favorablly impressed with what he saw, and there are good prospects of securing the factory for Paris.

# Modern Shop Management, Fundamental of Efficiency

By David Van Alstyne, Vice-President, Allis-Chalmers Co.

Extracts from a paper read before the Congress of Technology at Boston, April 11, 1911, at the fiftieth anniversary of Massachusetts Institute of Technology.

However impracticable the programme of socialism may be, it seems to me that we are drifting toward community interest and government control and ownership with all its inefficiency and awkardness, and will continue to, unless the employing class, which is the money-making class, can be made to realize that to whatever extent moneymaking is detrimental of the community as a whole, it is simply encouraging the spread of socialistic tendencies. Sooner or later organized labor will find politics its most effective weapon and its tendency will be socialistic.

Present management of "big business" is probably not much more efficient or freer from evils than government management but the possibilities of individual control are far greater than those of community control and must be realized if we are to escape the latter.

Among the potent factors for progress in our own social organization perhaps the most potent are the employers of labor, the managers of men. Competition forbids employers doing more for their employees than their competitors; rather inclines them to do less. So that if reforms are to be accomplished they must be accompanied by greater profits. The chief interest the employer should have in the welfare of his employees is to enable them to earn more than his competitors' employees are able to earn.

All other interests are incidental and will be largely taken care of by the employees themselves if they have the money with which to do it. Therefore the social reformer who would effect his reform through **the employer is confronted with the taste of increas**ing the employee's wages and at the same time increasing the employer's profits. It is the instictive desire of every employer to promote the welfare of **his employee to the fullest extent possible as long as it does not interfere with his profits.**

A small concern managed by a man of ability is likely to be fairly efficient because most of the details can be kept under his personal observation. As the business grows it becomes necessary for him to leave it more or less to his subordinates. That part of the business which he is most interested in or best acquainted with will continue fairly efficient; the rest dropping to an efficiency commensurate with the ability of those immediately in charge. When it reaches the magnitude of our large railroads and industrials and chief executives are almost wholly out of touch with the individuals of the rank and file.

In proportion as the magnitude of the business increases the importance of the personality of the leader decreases and that of the system and organization through a systematic control of employees of the rank and file that he reduces waste of time and material, rather than through his personal influence over his immediate subordinates. The measure of the efficiency of an organization is the extent to which the enthusiasm of the individuals in it is maintained through the organization and not through the personality of the men at the head of it.

Few men in positions of great executive responsibility realize how little influence they exert on the business under them. It is not a serious exaggeration to say that the difference between the results obtained by an average manager and one who is known as an exceptionally able man is not material; and whether the result is good or bad is largely accidental in so far as the man in charge is concerned, and chiefly due to conditions surrounding the business.

The conventional manager depends upon cut and dried expedients rather than scientific standards and ideals. His methods are based more on superficial observation and haphazard opinion than on the fundamental laws governing his business.—Failure to accomplish the results he hopes for is not, in his opinion, a criticism of his methods but rather calls forth his regret at the passing of the good old times when men were less independent and indifferent of conditions.

There is as much or more organizing ability now than there ever was, but through the consolidation of many small concerns into a few large ones, great responsibility is being put upon a few men who are not trained for it. The jobs have grown faster than the men.

Of promoters or "captains of industry," where farsightedness indicates where development is needed and where money can be made, there is no lack; but managers who will patiently standardize each detail in the operation of their business and get the maximum out of it, are exceedingly scarce.

Under detail control management as little as possible is left to individual judgment, but the movements of every man, every piece of material and the expenditure of every dollar are guided according to a pre-arranged schedule.

If the objection is made that guiding every move men made makes machines of them, destroys their initiative, the answer is that there is not much initiative to destroy and that the best results are obtained for both employer and employee when men are worked like machines and treated like men. In large organizations they are more likely to be treated like machines and allowed to work as their own individual fancy dictates.

Not the least asset created by the management which has accurate record of the individual, is the impression made upon the employee that the highest officials know of him personally, that he is less subject to the whims and prejudices of his immediate superior and that he is recognized as an essential part of the organization which arouses an enthusiasm that cannot be too highly valued. The organization created by this control of details is of vastly greater importance than the facilities or equipment. The good organization will obtain good results with poor equipment, but the poor organization will obtain poor results no matter how good the equipment may be.

Under conventional management the foreman, or man immediately in charge, has a fair technical knowledge but usually little organizing ability. The multitude of details under his jurisdiction receive his attention a feew at a time, the others drifting along according to the fancy of the individuals handling them. The few details receiving the attention of the foreman are brought up to a standard proportionate to his skill and knowledge, and begin to drop again

as soon as he returns his attention to some of the other details. The result is to confine attention chiefly to those details which seem of most importance and to let the rest drift along as they will. Hence average output per dollar expended for labor and material is small and must continue so as long as so much depends upon the efforts of one man.

Under detail management an investigation of the possibilities of each operation and each pound or foot of material is made and a standard set per unit of output. These investigations are made and the standard set by experts each in his own line. Records giving a continuous comparison of each detail of labor and material with its standard indicate which are satisfactory and which need attention.

The value of establishing a standard or measuring stick for every detail cannot be over estimated. It not only gives the manager a feeling of security in his knowledge as to exactly how his affairs stand and as to what needs his concentrated attention, but also gives his subordinates something definite to work for and arouse their enthusiasm, especially when extra pay is given for reaching the standard.

Fundamental principle in reaching high efficiency are:

1. Records. An accurate record of each detail or group of details, of labor and material. A record should be looked upon as a working tool and its value measured by its capacity for producing lower cost and greater output.

2. Standardized conditions. This involves putting the equipment into such condition as will make maximum output and most economical operation possible.

3. Standardized quality. The determination of a standard of quality of output or efficiency of service below which it is not permissible to go, is necessary because efforts to reduce cost and increase output may result in lowering the quality unless systematically prevented.

4. To find out what is to be done and how to do it. This involves stripping the work of all unnecessary refinement, finish, material and operation, bearing in mind that what is worth doing at all is worth doing well enough for its purpose and not a bit better, and then determining the simplest and quickest method of doing it with the facilities at hand and establishing a time or cost limit.

5. Written instructions as to the standard method of reaching the required time or cost. Such instructions constitute a textbook of the business and are not to be deviated from. Employees should be constantly checked on their knowledge and close observance of instructions, otherwise the instructions are rarely fully understood and are quickly forgotton or ignored.

6. Constant comparison of actual performance with standard to see that the actual reaches the standard and continues there. It is not essential that allowances, standards or ideals should be ultimate or represent the highest rate of the art; in fact such standards may appear to be undesirable for present purposes. The standard should be set as far ahead of present practice as is practicable. The ideals of today are the only ones we are immediately interested in reaching though they may be the practice of tomorrow, and it then becomes necessary to set up new ideals.

The essential thing is to see that whatever ideals are set are reached, and that as long as they are not changed there shall be no falling away from them. This is the principle which is most neglected by managers and at which usual management fails. It is easy to establish rules and standards, but it is not easy to have them lived up to continuously. Unless the organization provides for comparing in detail what it does with what it should be done, with mathematical accuracy, a high efficiency cannot be maintained. It is common experience for a concern to reach a good efficiency during dull business and to drop to a low efficiency during heavy business because the management has so little control over details.

These principles are a decided recognition of the capacity of the individual and may be considered antagonistic to some of the expressed principles of organized labor. . . . .

The usual form of trade agreement which binds the employer to pay fixed rates per hour, day or week, and the employee to put in his time and produce whatever the employer is able to get out of him is economically wrong, because one-sided and indefinite. Each has his opinion as to what constitutes a fair day's work, which the employer will constantly try to increase and the employee tend to decrease.

What one employer may consider a fair output may be too little for another employer and more than requested by a third. It is to the interest of both employer and employee to agree upon a reasonable time for each operation, so that each may know definitely what he is to expect from the other.

An agreement which binds the employee to a definite output as well as the employer to definite working hours, rate of wages, etc., is a safeguard for both parties.

Every large employer of labor can afford to have what might be called a "sociological department," whose duty it would be to look to the welfare of its employees, so long as it is not done in a patronizing manner. Such a department should keep a personal record of each employee, consisting of whatever information of value is obtainable, to be used in deciding as to desirability as an employee, eligibility for promotion, instead of depending on haphazard opinions which are usually superficial and biased. It would also keep as closely in touch as possible with employees to find out what secret grievances they are brooding over, due to brutal, prejudiced and partial treatment by superiors and be ready to lend a helping hand in case of misfortune, sickness or death. Apprenticeship, pensions, profit sharing, prevention of accidents and hospital service might also properly come within the jurisdiction of this department.

Having in mind that the large employer will not attain highest efficiency which will continue indefinitely until he produces as closely as possible the personal relationship between superior and subordinate which exists in the case of small employers, it would seem that the best way to accomplish it is through a department created for the purpose. This department would, in the long run, be one of the most effective in increasing net earnings.

The speculative financial influence is a serious obstacle to the progress of better management and, in consequence, to its own interests. Not only does it understand the human element in its business, which is the important element with a large employer of labor, but being in control it usually dictates a narrow, opportunist sort of policy based on superficial opinion rather than scientific investigation. It cannot see that a moderate investment in better organization

and management will, in nine cases out of ten, save a large investment in equipment, besides reducing the cost of operation. As a result, executives, no matter how well intentioned, are afraid to depart from the narrow conventional limits prescribed, so that "big men" are not developed for the "big" positions.

Little improvement can be expected until the average board of directors takes more interest in the business it directs and becomes more intimately acquainted with the details. It would seem that one way to accomplish this would be to have each department board report direct to the board instead of through the president, who as a rule is a specialist in only one department. It would also seem advisable for the board to have specialists report on the efficient operation of all departments in the same manner as chartered accountants report on the accounting department.

For those who have the courage to break away from some of the old traditions and conventional methods there is an unlimited field. The difficulties are great, but the possibilities are greater. The results are conspicuously good. It is strange but true that it should be difficult to persuade the owners of a property to accept greater profits with small investment. It is equally true that the scientific manager will find it more difficult to educate his superiors than his inferiors. A proposition to invest one dollar to save ten is frequently less attractive than a proposition to invest ten dollars to save one, because it is unconventional.

Most men seem to have a genius for seeing things as they want to see them, not as they are, and for fixing their attention on non-essentials. To make real progress, such characteristics must be overcome, and the one and only way it can be done is to show how much more profitable is a policy based on scientifically accurate knowledge.

The science of management is in a very undeveloped state, but progress is being made and another generation or two will look back upon the methods of to-day as exceedingly crude.

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### Strikes During January, 1912

According to the record maintained in the Department of Labor January was a favorable month from the standpoint of industrial unrest. There were nine disputes in existence but none of them were of serious consequence. About 1,100 employees and twenty firms altogether were involved in these disputes. The loss in time was reckoned at about 13,000 working days; this being less than half the number of working days lost from a like cause in January, 1911, and less than a third of the number of days lost in the preceding month. The most important dispute was a lockout of plasterers at Winnipeg, Man. Seven of the nine disputes had been settled, leaving only two in existence at the end of the month, namely, a strike of pulpmill hands at St. George, N.B., and the lockout of plasterers at Winnipeg, Man., above mentioned. The latter, however, has since terminated.

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It's a good plan to assume that the builder of a machine knows a little about it and that it will pay to follow his instructions, at least till you have found a better way. If any directions seem complicated, it is a safe bet that there is a reason for it. No sane builder wants to make it any harder than necessary to learn how to operate his machine.

### Wood in the Automobile Factory

Metal is naturally being used for the production of all parts of the automobile which can be made from it to adavntage, nevertheless wood holds an important place in the industry.

All motor cars contain some wood in the bodies and in many cases the entire tonneau or limousine, as the case may be, is constructed of wood. For this purpose poplar is principally used and in many cases it is required in exceedingly wide plank so as to bend into the proper form.

For the curved back of the limousines 3-ply stock is generally built up from thin poplar. Sometimes ash is used in constructing certain portions of the body. Mahogany is frequently used in the dash or in other exposed parts which are finished in the natural wood. The running boards are frequently made of ash. Hickory is employed for the wheel spokes. When the automobile top is supported on wooden bows, rock elm is used.

Even in the case of the so-called metal bows for supporting the top, the sheet metal generally contains a filling of wood and this filling is made up of elm or ash.

The steering wheels are always made of some high grade wood such as mahogany or rosewood. Naturally in the pattern department of the automobile factory considerable quantities of white pine and mahogany are used for the construction of patterns.

Despite the fact that so much metal enters into a modern car, there are few similar manufacturing lines which make heavier demands on the wood merchant. Everything that is supplied to the automobile factory must be of the highest class.

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### Wood Using Industries

The Forestry Branch of the Department of the Interior is conducting an exhaustive statistical study of the industries in Ontario which in any way use wood in the manufacture of their products. This report will cover practically every manufacturer in Ontario, for, besides those using wood directly, as in the manufacture of vehicles, cars, boats, automobiles, furniture and interior finish, it is also expected that reports will be secured from every industry consuming wood for boxes and shipping crates. Information forms will shortly be sent out and the data obtained will be published in bulletin form, including a classified list of co-operating firms, a technical discussion of the various woods used, as well as statistics on the consumption and cost of each species. Such a work will be of benefit to every producer and consumer of wood in the province. To the mill-owner, it will show the purpose for which certain species are used, the quality of wood required and the prices paid. The manufacturer can ascertain what is the relative importance of his class of industry, and the total consumption and value of wood used in manufacture.

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### Tragedy of Inventor

"Perpetual motion" has claimed another tragedy. At an inquest on the body of Hans Edgar Friese, who shot his wife and then himself, in London, Eng., this month, the evidence showed that Friese had the "mania of invention," and had been trying to solve the problem of perpetual motion.

Friese spent all his money in making a machine, which was a failure.

## Recent Inventions

A Wooden Barrel with Metallic Shell.—John McGregor, of New York city, has patented No. 1,009,326, a barrel with end-tongued, wooden staves and wooden heads grooved for the end-tongues of the staves, together with a metal positioning-shell for the staves and metal heads which hold the wooden heads in position, the metal heads being screw-threaded in the ends of the shell.

Weather Strip.—A. Solomon, 695 Jackson avenue, Bronx, New York, N.Y. The purpose in this case is to provide a weather stripping and runway for windows, which will be watertight, easy of operation and simple of construction. This is obtained by positioning on the parting strip of a window an N-shaped metallic member within each of the openings of which is adapted to slide an L-shaped strip attached to the opposite sashes.

Carpenter's Gage.—F. Westendahl, 718 New Sixteenth street, Lewiston, Idaho. This gage is for use in placing and marking inside casings of door and window frames, and has reference more particularly to a device of this class which comprises a body, adjustable means for determining the position of the body longitudinally and transversely of its length, and a movable marker carried by the body.

Door Check and Closer.—J. G. Lofgren, Norway, Mich. The invention pertains to devices for closing gates and the like, and the object is to provide a door check and closer arranged to readily close the door after being opened and released, to prevent slamming of the door, and to allow convenient attachment of the device to doors swinging either to the right or to the left.

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### Timber Sleepers for South Africa

Tenders are invited by the South African Railways Administration for the supply of 519,500 hardwood sleepers, or creosoted Baltic timber sleepers. Tenders, on the proper forms, will be received by the Secretary to the Tender Board, South African Railway Headquarter Offices, Johannesburg, up to noon on March 5th. Copies of the specifications, with tender form, etc., may be obtained from the office of the High Commissioner in London for the Union of South Africa, 32 Victoria street, S.W.

In the event of shipment of the above by steamer from any port in the United Kingdom, or from a port on the continent of Europe between Bordeaux and Hamburg (both inclusive), the contractor will be required to ship by any line or lines of steamers with which the South African Government may have made arrangements for the conveyance of Government material and stores; information with regard to this can be obtained on application to the High Commissioner. The full mercantile rate of freight chargeable to ordinary shippers must be paid; the tender price, so far as freight is concerned, being calculated on that basis.


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One Waterous engine, in first class condition, about 75 to 90 h.p. Apply, **The Delaney & Pettit Co., Ltd., 133 Jefferson Ave., Toronto.**

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**A Woodworking Plant.**

A concern in Toronto would like to secure a plant with 30,000 to 40,000 sq. ft. of floor space in some live Ontario town or city.

They will be pleased to hear from any Boards of Trade in regards to available sites, inducements, etc. 50 to 75 hands would be employed by this firm.

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THE EDITOR

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Sawed and Sliced Quartered Oak Veneers
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Did you ever Stop and Figure Out the business there is in Canada for the Veneer Manufacturer ?

There are in Canada approximately 985 Furniture Manufacturers and only two Canadian Veneer Makers. The business has to go to the United States. Do you get your share ?

The Canadian Woodworker has 1100 copies of its whole circulation going into the furniture factories of Canada. Our rates are reasonable. May we give you further information?

# From Coast to Coast

### Two Firms Install Saw Mill Outfits

The Robb Engineering Company, Limited, have recently sold a 40 h.p. sawmill outfit to Hugh & Ronald, McDonald, Big Marsh, N. S., and a 35 h.p. saw mill outfit to J. W. & Frank McKenzie, Upper North River, N. S.

### Joint Stock Company Increase Capital

The capital of the Farmers' Lumber Company, Limited, Edmonton, Alta, has been increased from the sum of $50,000 to the sum of $250,000, by the creation of 2,000 new shares at $100 each.

### The Motor Truck Industry Booming

The production of American-made motor trucks and delivery wagons during 1912 will exceed by 5,000 the total number of such vehicles in use in this country to-day, according to The Power Wagon, a Chicago motor truck journal. In a recent issue the authority on motor road transport gives some startling figures which, if they were not backed up by logical reasoning based on careful research, would seem ridiculous. Yet it must be admitted that the estimates seem plausible and even conservative in view of the evidence given. The Power Wagon says:

"The number of commercial motor trucks and delivery wagons at present in service in the United States is a little more than 20,000. A year from now —bar unforeseen conditions—there will be 45,000 machines in service, meaning a production for this year of 25,000 machines, worth about $62,500,000. 'By the end of 1913 there will be in service about $5,000 machines, valued at $200,000,000. The production for 1913 will thus be 40,000 power wagons, worth $100,000,000.

### Russells Enlarge Capital

An increase of $400,000 in the issued stock of the Russell Motor Car Company, Toronto, bringing the total capitalization to two million dollars, is proposed by the directors of the concern. The directors announce that they have decided to enter the commercial vehicle field in the future, adding the manufacture of delivery motors and motor trucks to their present line of automobiles.

### Reforestration in Hastings

At the County Council session held in Belleville, Ont., a by-law was passed authorizing the County of Hastings to purchase some hundreds of acres of land in Elzevir Township for the purpose of reforestration. This county is the first to undertake this work.

### From Apprentice to Manager

After being with the American-Abel Company for a quarter of a century, Mr. T. A. Drummond, who worked his way up from apprentice to head manager, has taken a new position with the Sawyer-Massey Company, Hamilton. Expression of the regret of the employees at Mr. Drummond's severance from the company, and appreciation of his conduct as head manager, was expressed in an illuminated address presented to him at the works.

The address was read by Mr. W. J. Wadsworth, foreman of the separator department, and the presentation was made by Mr. J. Hanson, foreman of the wood shop.

### Stick Driven Right Through Stomach

Tilman Shank, an employee of the Port Arthur Wagon Company, at Markham, Ont., was fatallv injured. He was putting a belt on an overhead pulley, using a stick about six feet long for the purpose, one end of which was resting against his stomach. Catching in the pulley the stick was driven clean through his stomach to the backbone. Shank did not collapse at once, but pulled the stick out of the wound and walked some fifteen feet across the floor to a workbench and lay down on it. He was carried to a surgery, where he died in less than half an hour from internal hemmorrage.

### Lathers' Peculiar Accident

A lather employed on a house under construction in Toronto met with an unusual accident. He had just finished work, and was putting on his coat, failing to "find" his sleeve he swung his arm somewhat violently to his back, his hand soming in contact with the blade of his axe which was fastened to a belt. His hand was so badly cut that he fainted from loss of blood in a neighboring store, where he was taken to have the wound dressed.

### Death of Well Known Contractor

Henry Miller, a well known contractor and builder of St. Thomas, Ont., is dead. The deceased was born in Markham, Ont., in 1833, and had resided in St. Thomas over forty years.

### Have Fears of Losing Water Power

A deputation of Campbellford's business men petitioned the government that the work of moving the dam at that point in connection with the Georgian Bay Canala be postponed as there is a danger that their business would be seriously affected. There are several wood-working industries who are now utilizing the water power.

A serious accident occurred in White's wood camp of Neepawa, Man. A tree fell on one of the men and he is hardly expected to recoveer.

### Purchasing Timber

J. R. Moore, of Mountain Grove, Ont., who for several years has been supplying J. Finlay & Sons, of Norwood, who are extensive manufacturers of wooden goods, expects to load at least fifty or sixty cars. He is purchasing, a few miles west of Arden, 300 cords of second growth elm, hub timber to be partly manufactured there and shipped in the early spring. The timber, mostly used, is second growth. It has become quite an industry. Good prices are paid for good material.

### Lumber Company Receives Bonus

Parry Sound carried a by-law to give $25,000 as a

bonus and $25,000 as a loan to the Standard Chemical, Iron and Lumber Company.

### May Install Sprinklers

The Brantford Carriage Company are considering the advisability of installing an inside sprinkler system in their plant.

### Fire at Construction Camp

A despatch from Sault Ste. Marie, Ont., says: One hundred workmen are homeless 164 miles up the line of the Algoma Central Railway, at Hawk Lake, the result of a fire which swept the base camp and supplies of the Oboyle Bros. Construction Company early on Wednesday. Loss $15,000.

### Contract Closed for Railway Ties and Poles

St. John and Quebec Railway Company have closed a contract with W. J. Scott and G. F. Burke, of Hartland, N.B., for the supply of ties and telegraph poles between Carlton County and Queens County.

### A Locomotive Each Hour

The American Locomotive Company has the largest output capacity of any corporation of its kind in the world, and can turn out one complete locomotive for every hour of each 10-hour working day a year.

### Killed in Wood Turning Factory

Mr. Falconer was accidentally killed while at work in the Jones Bros. wood-turning factory at Dundas recently. He was engaged in running a power-machine, when a piece of wood became caught in a swiftly running wheel and it was hurled against his chest. One of his ribs was broken, the wood piercing his heart, killing him instantly.

To promote productive industries in Manchuria, Japan has established a high school of technology at Port Arthur.

The Silver Lake Lumber Company, at Eastman, Que., began sawing at their mill recently.

### Lumber Camp Burned

News has been received from Lickford, Tobique River, N.B., of the destruction of Deming & Sons' lumber camps by fire. Nothing was saved as the fire had made such headway when discovered.

### Not Very Serious Mishap

Mr. John Allison, of the Thames Road, Osborne, Ont., had a slight mishap recently. He was loading logs on a sleigh, when the skid broke, the log falling on his leg, but fortunately no bones were broken.

## LUMBERMEN MEET

### Proposal to Change Name of Their Association

To change the name of the Canadian Lumbermen's Association to National Canadian Lumbermen's Association was a suggestion made at the fourth annual meeting which was held in Ottawa recently.

The matter of uniform grading of lumber was advocated by W. McBeth, of Toronto. E. Clark, of Toronto, started a discussion on track scale allowance and declared that a third of the cars were never weighed, and therefore great trouble was experienced in shipping across the border, as United States railways refused to accept Canadian weights.

The president dealt almost entirely with freight rates. The tremendous increase noticeable in the imports of planks, boards, deals, joists and scantling from the United States was also a matter which called for serious consideration.

### Fire Destroys Factory

The sash and door factory of the D. McCormick Company, in St. Boniface, Man., was totally destroyed by fire with a loss of $25,000 in buildings and machinery. Insurance of $4,000 was on the property.

### Blaze in Woodturning Works

Fire starting in the third flat of the Toronto Wood Turning Works did about $2,000 damage to that establishment and McLure and McIntosh's wood carving works on the fourth floor.

The flames gained headway rapidly in the dry wood, and the firemen had to simply drench the whole building to stop it from spreading. As it was, the third and fourth floors were pretty well cleaned out.

Messrs. Van Kempen and Richworth are the proprietors of the wood-turning works, and their loss is fully covered by insurance. The damage to the McLure and McIntosh factory is also covered.

### Big Lumber Deal Closed

The Canadian Pacific Railway Company holds the distinction of having placed the largest lumber order in the west with any wholesale company at one particular time, the shipment amounting to 600 cars or an approximate tonnage equal to forty train loads. Second to this big order comes that given last week by Mr. T. C. Cook, of the Imperial Lumber Company, with head offices at this point, who placed an order worth upwards of $200,000. Delivery of this will be made at Wainwright, Irma, Jarrow and Mirror, where branch yards of this company are now in operation and at other points on the G. T. P., where it is Mr. Cook's intention of opening up new yards.

This comprises but a part of the lumber that will be stocked during the year by the several yards of the company, and although double this amount will be purchased during the year, it is well worthy of mention that next to the C. P. R., Mr. Cook has placed the largest order ever placed in Western Canada at one time. The shipment, were it made at one time, would necessitate more than a score of train loads, comprising millions of feet of everything in lumber from the roughest to the best and superior grades of finish.

### Rough Sawn Lumber Alone on Free List

The Canadian Lumbermen's Association at Ottawa discussed tariffs on certain lumber imported from the United States, and decided to memorialize the Federal Government to place all lumber rough sawn on the dutiable list and to instruct all customs officials to exercise increased vigilance in the inspecting of lumber imported into Canada to see that the law is fully complied with. This action was taken in view of the fact that eleven months' statistics of last year

show tremendous increases in the import of covering planks, deals, boards, joist and scantling, all of which came from the United States.

It was also shown that Canada's customs act permitting importation of lumber planed or finished on one side has led to gross abuses whereby very large quantities of lumber finished on more than one side has been brought into Canada and evaded the customs.

### Will Establish Forest Reserve

Following on the recommendations of the National Conservation Commission the government has approved and will shortly carry into effect the setting aside of an appropriation of $110,000 to be expended this year on the new Rocky Mountain reserve.

The Minister of Interior has also decided to appoint a forestry expert, a trained man with a scientific and practical knowledge of the work to take charge of the reserve. As the latter is a tract of 600 miles long and anywhere from 30 to 60 miles wide, or about 30,000 square miles in all, a staff of some proportions will be needed, particularly for the preliminary work.

### Conserving the Forests

The progress of the conservation policy of Canada, as applied to forest resources, depends more upon the Forestry Branch of the Department of the Interior than upon any other organization. Upon the technical knowledge and executive ability of the officers of the Forestry Branch depends the future of the forest on 16,000,000 acres of Dominion forest reserves, as well as upon the large area of non-agricultural forest land in Western Canada, which for the good of the country may yet be set aside as permanent forest reserves. In addition to looking after Dominion lands the Forestry Branch is now being asked by Eastern land owners to furnish advice as to the best means of securing at the earliest date a profitable crop of timber on waste land or wood lots. In order that the new Rocky Mountain forest reserves may be administered according to the latest scientific knowledge and the best experience, the Forestry Branch is now making detailed studies of the habits of the merchantable species of trees on the eastern slope of the Rockies in Alberta and has sent one of the men in charge of the work to study the systems of forest management practiced during the past few years by the Forest Service in the national forests of Montana.

### To Save Woods From Flames

A delegation of the Canadian Forestry Association was recently held at Ottawa, at which the association devoted its energies chiefly to the question of forest protection from fire, and in this connection a lengthy discussion took place. Premier Borden especially urged the association to impress both legislators and the people with the necessity of checking the forest fire evil.

A thorough organization, backed by public opinion, is requisite, and persons who cause fires must be punished. Railways should improve equipment and patrol the right of way. Settlers should be educated, and Quebec was congratulated in that the clergy read letters of caution from the pulpit. Tourists and prospectors should require permits before being allowed to light fires. The prompt burning of "slash" in lumber woods is recommended.

There should be a central organization and a body of permanent rangers in inspectorial districts.

In the Province of Ontario during the last forty years there has been more timber destroyed than has been cut, said Hon. W. A. Charlton, M.P., ex-Minister of Crown Lands for Ontario. He advocated a system of dividing the country into districts, each district under the charge of a competent woodsman. To send fire rangers out into the woods to have a picnic in summer was just the way to get the forests burned up. The wages of fire rangers in Ontario should be raised, and more should be employed.

### Forests of Saxony

The aggregate area of the state forest of Saxony is less than 450,000 acres. The yield of the state forests in the year 1908 was 226 million feet board measure. In thit total are comprised eighty-three per cent. of wood and timber fit for technical use and seventeen per cent. of firewood. The age of final maturity beyond which trees are not allowed to remain is, for spruce, eighty years; for pine, eighty years; for all hardwoods, one hundred and twenty years. The diameter of the trees measured at four and a half feet above ground at these ages depends entirely on the quality of the soil. It varies for spruce between eight and ten inches; for pine, between six and ten inches. The entire gross expense for forestry in 1908 was a million and a half dollars; forty per cent. for salaries; forty per cent. for logging and forest experiments and twenty per cent. for planting and road building. The entire gross revenue from forestry in 1908 was three millions nine hundred thousand dollars. The net revenue was, as a consequence, two millions four hundred thousand dollars, equal to five dollars and thirty-two cents net per acre.

### Germany's Ten Commandments

A table of ten commandments is very widely circulated in Germany at the present time, and reads as follows:

1. Never lose sight of the interests of your compatriots or of the fatherland.
2. Do not forget that when you buy a foreign product, no matter if it is only a cent's worth, you diminish the fatherland's wealth by just so much.
3. Your money should profit only German merchants and workmen.
4. Do not profane German soil, a German house or a German workshop by using foreign machines and tools.
5. Never allow to be served at your table foreign fruits and meat, thus wronging German growers, and, moreover, compromising your health, because foreign meats are not inspected by German sanitary police.
6. Write on German paper with a German pen and dry the ink with German blotters.
7. You should be clothed only with German goods and should wear only German hats.
8. German flour, German fruits and German beer alone make German strength.
9. If you do not like the German malted coffee, drink coffee from the German colonies. If you prefer chocolate or cocoa for the children, have a care that the chocolate and cocoa are of exclusively German production.
10. Do not let foreign boasters divert you from these sage precepts. Be convinced, whatever you may hear, that the best products, which are alone worthy of a German citizen, are German products.

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Fay & Egan Co., Cincinnati, O.

**BAND SAW STRETCHERS.**
Fay & Egan Co., Cincinnati, O.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

**BENDING MACHINES.**
Mussens, Ltd., Montreal.
Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.

**BELTING.**
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Sadler & Haworth, Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
H. W. Petrie, Ltd., Toronto.

**BELTS (Endless).**
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Sadler & Haworth, Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt.
H. W. Petrie, Ltd., Toronto.

**BELT CEMENT.**
Sadler & Haworth, Montreal.

**BELT FASTENERS.**
Sadler & Haworth, Montreal.

**BELT DRESSING.**
Sadler & Haworth, Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt.

**BLOWERS.**
Mussens, Ltd., Montreal.
Sheldons, Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

**BLOW PIPING.**
Sheldons, Ltd., Galt, Ont.

**BOILERS.**
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

**BORING MACHINES.**
Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
J. M. Nash, Milwaukee, Wis.
Valley City Machine Works, Grand Rapids, Mich.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

**BOX MAKERS' MACHINERY.**
Canada Machinery Corporation, Ltd., Galt, Ont.
Canadian Linderman Co., Ltd.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Baxter D. Whitney & Son, Winchendon, Mass.

**BROKEN CASTINGS BRAZED — MACHINIST AND DIE MAKER.**
W. H. Dunn, 1892 Queen St. West, Toronto

**CABINET PLANERS.**
Canada Machinery Corporation, Ltd., Galt, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Valley City Machine Works, Grand Rapids. Mich.
Baxter D. Whitney & Son, Winchendon. Mass.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

**CARS (transfer).**
Sheldons, Ltd., Galt, Ont.

**CARVING MACHINES.**
Canada Machinery Corporation, Ltd., Galt, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler Ont.
Valley City Machien Works, Grand Rapids. Mich.

**CHISELS.**
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.

**CIRCULAR SAW MILLS.**
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

**CHAINS (Silent).**
Jones & Glassco, Montreal.

**CLAMPS (Chain, Carpenter, Cabinet, Pattern Makers, Bench, Mitre, Piling, Mounted and Rotary Wheel).**
Black Bros. Machinery Co., Mindota, Ill.
J. A. Fay & Egan Co., Cincinnati, O.

**CLAMPS (Saw).**
Shurly Dietrich Co., Ltd., Galt, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

**CLUTCHES.**
J. A. Fay & Egan Co., Cincinnati, O.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

**COLUMN CLAMPS.**
Black Bros. Machinery Co., Mendota, Ill.

**COLUMN MACHINERY.**
J. A. Fay & Egan Co., Cincinnati, O.
C. Mattison Machine Works, Beloit, Wis.

**CORE BOX MACHINES.**
J. A. Fay & Egan Co., Cincinnati, O.
E. & B. Holmes Machinery Co., Buffalo, N.Y.

**CUT-OFF SAWS.**
Canada Machinery Corporation, Ltd., Galt, Ont.
Shurly Dietrich Co., Ltd., Galt, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Simonds Canada Saw Co., Montreal.
R. H. Smith C., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

**CUTTER HEADS.**
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Samuel J. Shimer & Sons, Mitton, Pa.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

**DADO HEADS.**
C. Mattison Machine Works. Beloit, Wis.

**DIEMAKERS & MACHINISTS**
W. H. Dunne, Toronto.

**DISK GRINDERS.**
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.

**DOGS (Saw Mill).**
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.

**DOVETAILING MACHINES.**
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Canadian Linderman Machine Co. Ltd., Woodstock, Ont.
J. A. Fay & Egan Co., Cincinnati, O.

**DOWEL MACHINES.**
Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Valley City Machine Works, Grand Rapids, Mich.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

**DRILLS (Automatic Hand).**
North Bros. Mfg. Co., Philadelphia, Pa.

**DRILLS (Reciprocating).**
North Bros. Mfg. Co., Philadelphia, Pa.

**DRILLS (Breast).**
North Bros. Mfg. Co., Philadelphia, Pa.

**DRYING MACHINERY.**
Canada Machinery Agency, Montreal.
Sheldons, Ltd., Galt, Ont.

**DRY KILNS.**
Canada Machinery Agency, Montreal.
Sheldons, Ltd., Galt, Ont.

**DUST COLLECTORS.**
Canada Machinery Agency, Montreal.
Sheldons, Ltd., Galt, Ont.

**DUST SEPARATORS.**
Canada Machinery Agency, Montreal.
Sheldons, Ltd., Galt, Ont.

**DYNAMOS.**
Canada Machinery Agency, Montreal.

**EDGERS (Gang).**
Berlin Machinery Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
Simonds Canada Saw Co., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Fisher, Sander Co., Berlin, Ont.
E. & B. Holmes Machinery Co., Buffalo. N.Y.
H. W. Petrie. Ltd., Toronto.

**EDGERS (Single Saw).**
Berlin Machine Works, Ltd., Hamilton Ont.
Canada Machinery Agency, Montreal.
Simonds Canada Saw Co., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.

**END MATCHING MACHINE.**
Berlin Machine Works, Ltd., Hamilton
Canada Machinery Corporation, Ltd., Galt, Ont.
Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.

Mussens, Ltd., Montreal.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

ENGINES (Steam).
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

EXHAUST FANS.
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
Sheldons, Ltd., Galt, Ont.

FLOORING MACHINES.
Berlin Machine Works, Ltd., Hamilton.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler.
Mussens, Ltd., Montreal.
Samuel J. Shimer & Sons, Milton, Pa.
Canada Machinery Corporation, Ltd., Galt, Ont.
Baxter D. Whitney & Son, Winchendon, Mass.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

FLINT.
Wausau Quartz Co., Wausau.

FLUTING HEADS.
J. A. Fay & Egan Co. ,Cincinatti, O.

GAINING MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinatti, O.
C. Mattison Machine Works, Beliot, Wis.
Mussens, Ltd., Montreal.
Canada Machinery Corporation, Ltd., Galt, Ont.
H. W. Petrie Co., Ltd., Toronto.

GAS ENGINES.
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
H. W. Petrie, Ltd., Toronto.

GAUGES (Saw).
Shurly Dietrich Co., Ltd., Galt, Ont.
Simonds Canada Saw Co., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

GEAR HOBBING MACHINE.
Reynolds Machine Co., Moline, Ill.

GLUE CLAMPS.
Black Bros. Machinery Co., Mendota, Ill.
H. W. Petrie, Ltd., Toronto.

GLUE HEATERS.
J. A. Fay & Egan Co., Cincinnati, O.

GLUE JOINTERS
Canada Machinery Corporation, Ltd., Galt, Ont.
Canadian Linderman Co., Ltd.

GLUE SPREADERS.
J. A. Fay & Egan Co., Cincinnati, O.

GRINDERS (Cutter).
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Falls Machine Co., Sheboygan Falls, Wis.

GRINDERS (Knife, etc.).
E. C. Atkins & Co., Hamilton, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
T. A. J. Burton Saw Co., Ltd., Vancouver, B.C.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

GRINDERS (Tool).
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Valley City Machine Works, Grand Rapids, Mich.

GROOVING HEADS.
E. C. Atkins & Co., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
C. Mattison Machine Works, Beloit, Wis.
Samuel J. Shimer & Sons, Milton, Pa.
Canada Machinery Corporation, Ltd., Galt, Ont.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

HAND PROTECTORS.
J. A. Fay & Egan Co., Cincinnati, O.
Jones Safety Device Co., Hamilton, Ont.

HAND SCREWS.
Black Bros. Machinery Co., Mendota, Ill.
J. A. Fay & Egan Co., Cincinnati, O.

HEATING APPARATUS.
Sheldons, Ltd., Galt, Ont.

HANDLE AND SPOKE MACHINERY.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
J. M. Nash, Milwaukee, Wis.
Ober Mfg. Co., Cragrin Falls, O.
Baxter D. Whitney & Son, Winchendon, Mass.

HUB MACHINERY.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.

INJECTORS.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

JOINTERS.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Canadian Linderman Co., Ltd.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

KNIVES (Planers and Others).
Shurly Dietrich Co., Ltd., Galt, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
E. C. Atkins & Co., Hamilton.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.
Samuel J. Shimer & Sons, Milton, Pa.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

LACE LEATHER.
Sadler & Haworth, Montreal.

LAST MACHINERY.
Canada Machinery Agency, Montreal.

LATHES (Pattern Makers').
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Valley City Machine Works, Grand Rapids Mich.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

LATHES (Turning).
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Haspeler, Ont.
C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Plessisville Foundry, Plessisville, Que.
Valley City Machine Works, Grand Rapids, Mich.
Baxter D. Whitney & Son, Winchendon, Mass.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

LOOSE PULLEYS.
J. A. Fay & Egan Co., Cincinatti, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

LUBRICANTS AND GREASES.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

LUMBER.
Elgie & Jarvis, Toronto.

MITRE MACHINES.
Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

MITRE SAWS.
Shurly Dietrich Co., Ltd., Galt, Ont.
E. C. Atkins & Co., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Canada Machinery Corporation, Ltd., Galt, Ont.
Simonds Canada Saw Co., Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo N.Y.
H. W. Petrie, Ltd., Toronto.

MITRE CLAMPS.
Black Bros. Machinery Co., Mendota, Ill.
H. W. Petrie, Ltd., Toronto.

MORTISING MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinatti, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Jones & Glass Co., Montreal.
Mussens, Ltd., Montreal.
Plessisville Foundry Co., Plessisville, Que.
Valley City Machine Works, Grand Rapids, Mich.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

MOTORS.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.

MULTIPLE BOXING MACHINES.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
J. M. Nash, Milwaukee, Wis.

PATTERN SHOP MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Baxter D. Whitney & Son, Winchendon, Mass.
E. & B. Holmes Machinery Co., Buffalo N.Y.
H. W. Petrie, Ltd., Toronto.

PICTURE FRAME MACHINERY.
Black Bros. Machinery Co., Mendota, Ill.
Canada Machinery Corporation, Ltd., Galt, Ont.
Hespeler Machinery Co., Ltd., Hespeler Ont.

PLANES.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler Ont.
Mussens, Ltd., Montreal.

PLANERS.
Berlin Machine Works, Ltd., Hamilton Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Baxter D. Whitney & Son, Winchendon Mass.
The Goldie & McCulloch Co., Ltd., Galt Ont.
E. & B. Holmes Machinery Co., Buffalo N.Y.
H. W. Petrie, Ltd., Toronto.

PLANING MILL MACHINERY.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Samuel J. Shimer & Sons, Milton, Pa.
Baxter D. Whitney & Son, Winchendon, Mass.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
Black Bros. Machinery Co., Mendota, Ill.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie Co., Ltd., Toronto.

PULLEYS.
Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinatti, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

QUARTZ.
Wausau Quartz Co., Wausau.

RESAWS.
Shurly Dietrich Co., Ltd., Galt, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency Montreal.
Simonds Canada Saw Co., Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinatti, O.

Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

RIM AND FELLOE MACHINERY.
J. A. Fay & Egan Co., Cincinnati, O.
Canada Machinery Corporation, Ltd., Galt, Ont.

RIP SAWING MACHINES.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Canada Machinery Corporation, Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

ROLLER BEARINGS.
Mussens, Ltd., Montreal.

SAFETY GUARDS (For Band Saw Machines, Jointers, Rip Sawing Machines, Shapers, Swing Saws, etc.).
The Jones Safety Device Co., Ltd., Hamilton, Ont.
Fair Manufacturing Company.

SANDERS.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
J. M. Nash, Milwaukee, Wis.
Ober Mfg. Co., Chagrin Falls, O.
Fisher Sander Co., Berlin, Ont.
Black Bros. Machinery Co., Mendota, Ill.
H. W. Petrie, Ltd., Toronto.

SAND.
Wausau Quartz Co., Wausau.

SANDPAPER.
Black Bros. Machinery Co., Mendota, Ill.

SANDERS (Moulding, Belt and Panel).
Black Bros. Machinery Co., Mendota, Ill.
H. W. Petrie, Ltd., Toronto.

SASH, DOOR AND BLIND MACHINERY.
Berlin Machine Works, Ltd., Hamilton.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Samuel J. Shimer & Sons, Milton, Pa.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
Black Bros. Machinery Co., Mendota, Ill.
H. W. Petrie, Ltd., Toronto.

SAWS (Hand).
Shurly Dietrich Co., Ltd., Galt, Ont.
E. C. Atkins & Co., Hamilton, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
Simonds Canada Saw Co., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.

SAW MILL MACHINERY.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.

Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

SAW SWAGES, AUTOMATIC FILERS.
E. C. Atkins & Co., Hamilton, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

SAW TABLES.
Canada Machinery Corporation, Ltd., Galt, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

SCRAPING MACHINES.
Baxter D. Whitney & Son, Winchendon, Mass.

SCROLL SAWS.
Canada Machinery Corporation, Ltd., Galt, Ont.
Shurly Dietrich Co., Ltd., Galt, Ont.
E. C. Atkins & Co., Hamilton, Ont.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.

SECOND HAND MACHINERY.
Canada Machinery Agency, Montreal.
Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

SHAPERS.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Plessisville Foundry, Plessisville, Que.
Samuel J. Shimer & Sons, Milton, Pa.
Baxter D. Whitney & Son, Winchendon, Mass.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

SHAVING COLLECTORS.
Canada Machinery Agency, Montreal.

SINGLE SPINDLE BOXING MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.

SLAVE SAWING MACHINE.
Baxter D. Whitney & Son, Winchendon, Mass.

SURFACERS.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Baxter D. Whitney & Son, Winchendon, Mass.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

SWING SAWS.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
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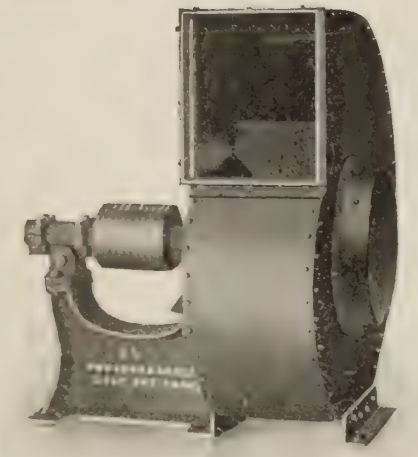

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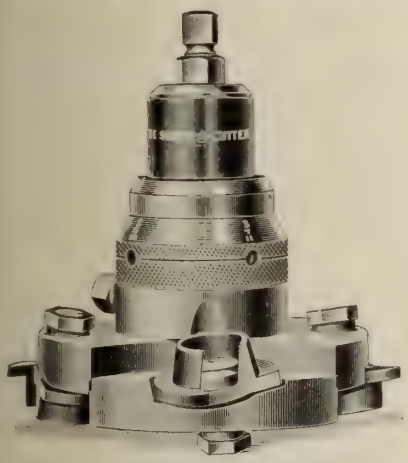

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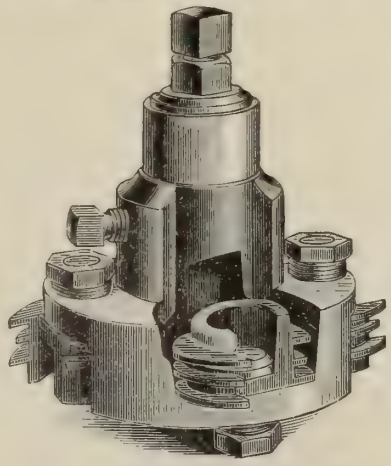

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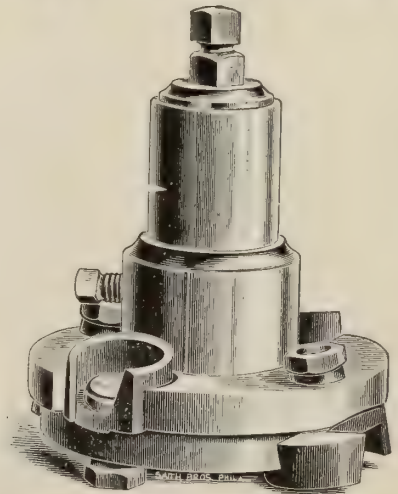

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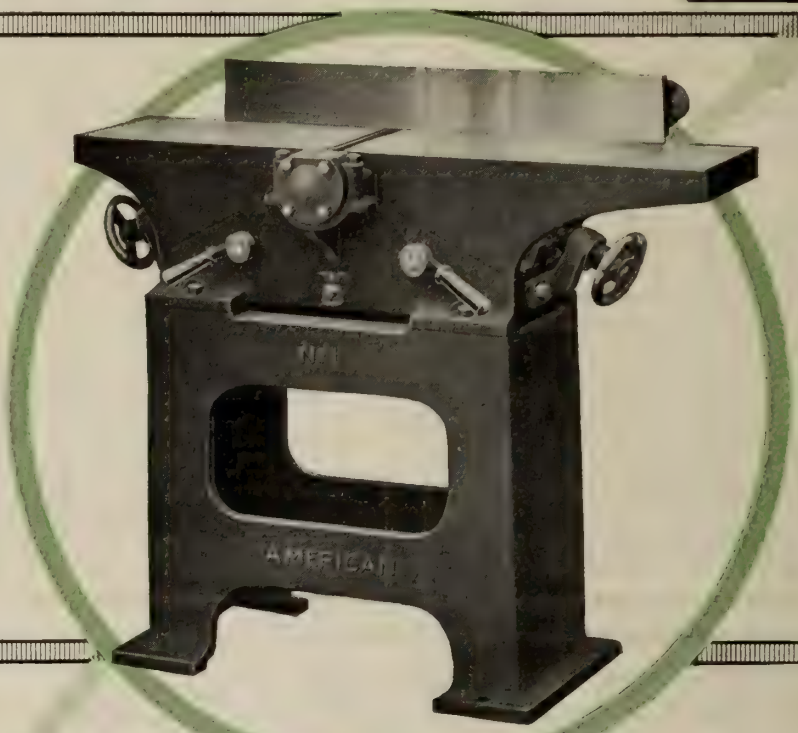


NO. 10 is the name of the New AMERICAN Catalog, showing the complete line of AMERICAN Furniture Planers Glue Jointers and Buzz Planers and Bench Hand Jointers. ¶ This should be in your hands, and we are anxious that you have it. Besides showing our line of Furniture Planers and Jointers in as forcible a manner as we know how, the catalog contains information about the application of Electric Motors to such machines, with illustrations. ¶ Let us have your address, and we'll be glad to send you a copy, postage prepaid.

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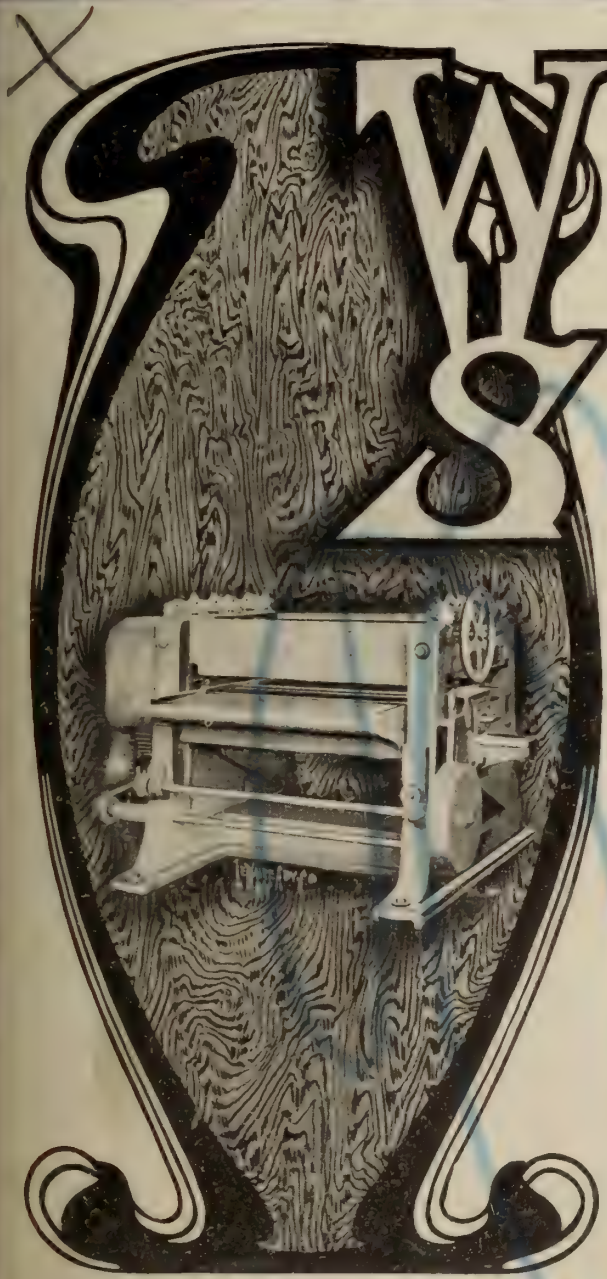

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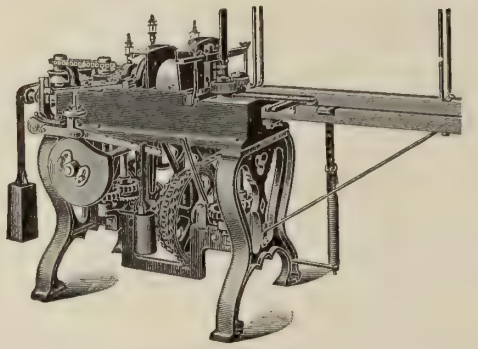

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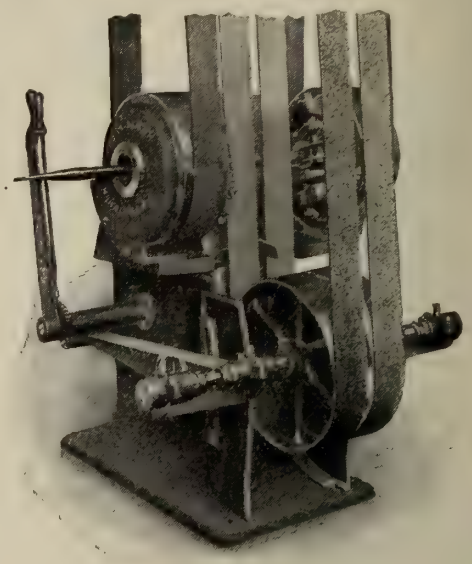

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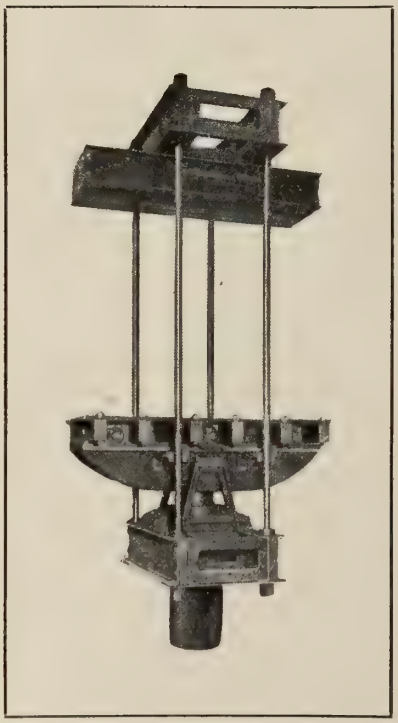

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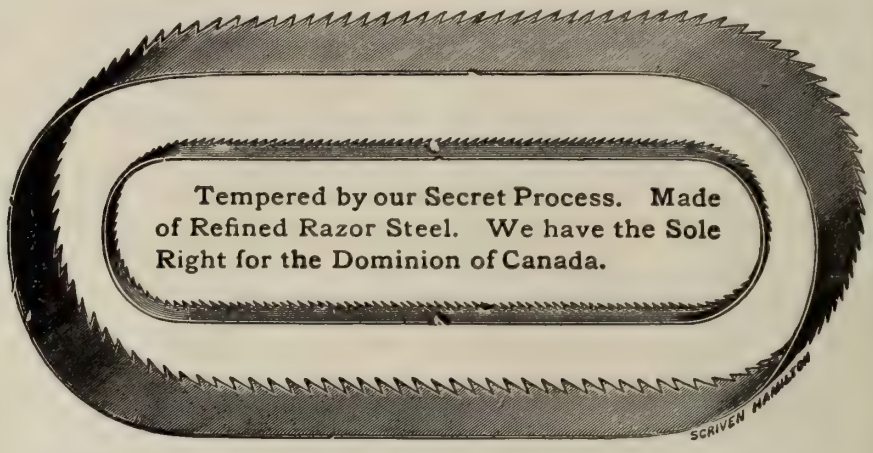


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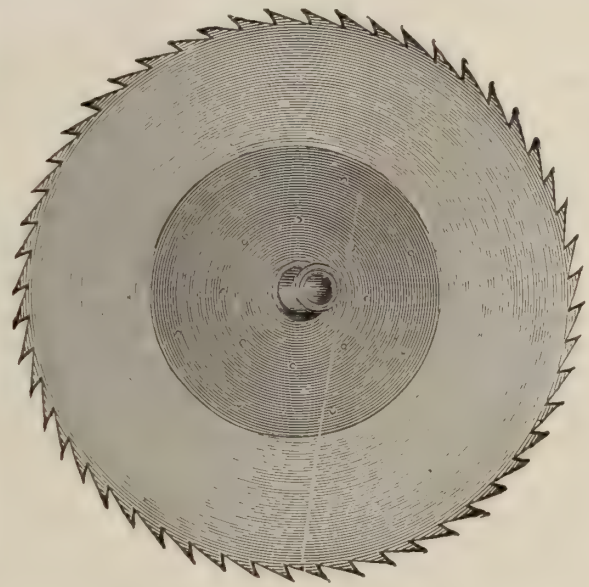

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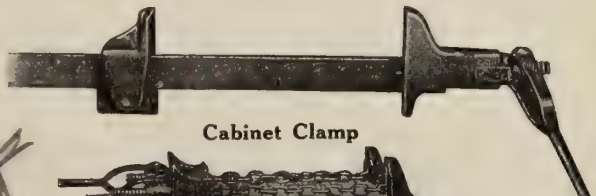

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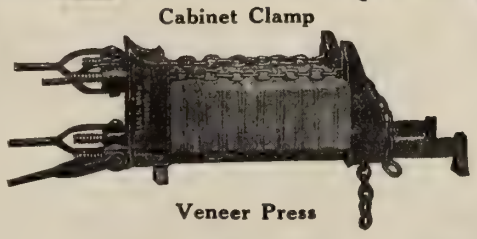

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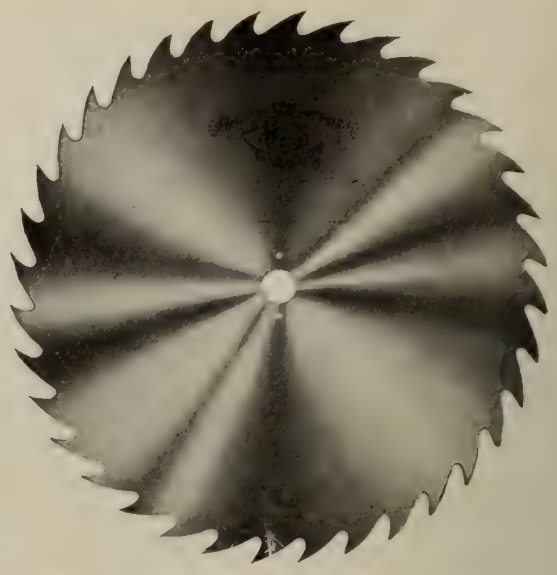

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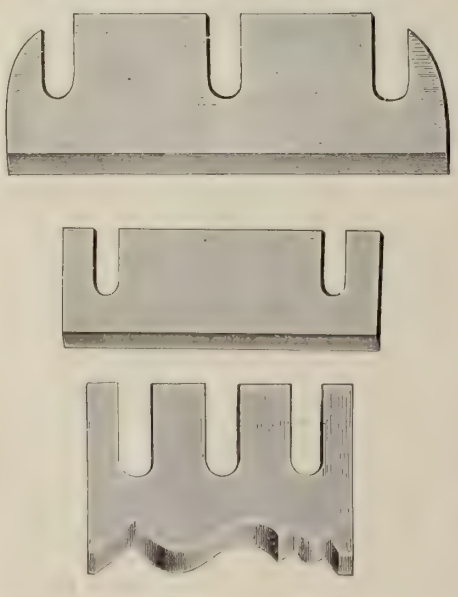

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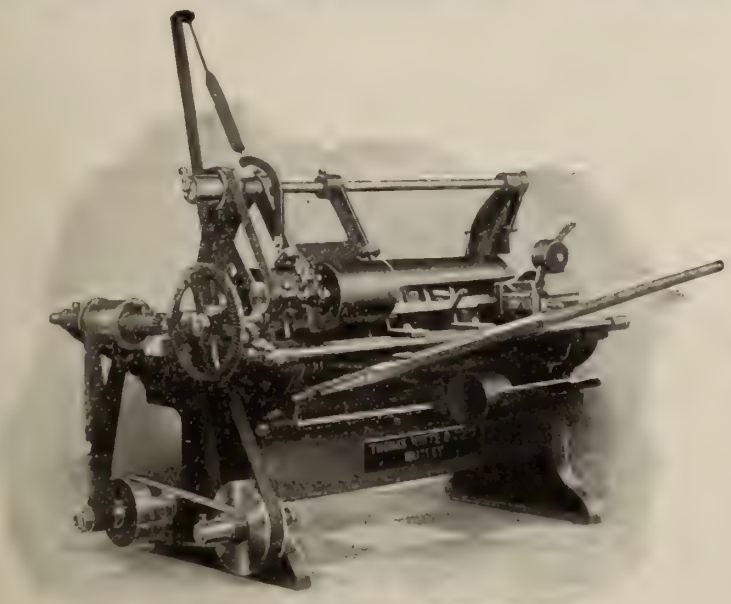

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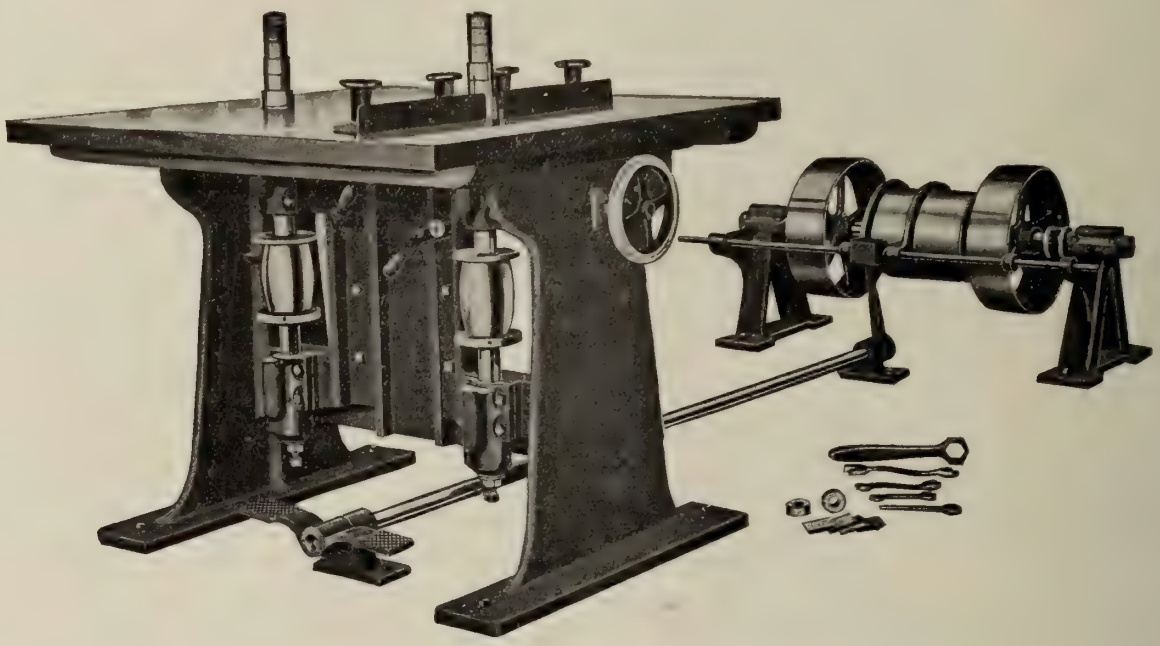

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**Canada's Only Woodworking Paper**

Published in the interests of Planing Mills, Saw Mills, Furniture and Piano Factories, Implement and Carriage Works, Boxmakers and Coopers.

The Circulation extends from the Atlantic to the Pacific and covers thoroughly all classes of Woodworkers in this immense territory.

**Wooodworker Publishing Co., Limited**

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SUBSCRIPTION RATE.

Canada, United States, $1.00; Great Britain, Australia 4s 6d.; other countries $1.50 per year. Advertising rates on request.

**Vol. 11** **March, 1912** **No. 3**


## Will You Let Us Solve This Problem for You?

A day or two ago a gentleman came into our office and, after introducing himself, said: "I want you to tell me where I can get a man capable of taking full charge of my planing mill, sash and door factory. I employ fifty to seventy-five men, according to the season, and salary would be no object to the right man. In fact, none other will do. You have such men on your subscription lists, now tell me where I can get a personal interview with him. I want to tell you," the gentleman went on to explain, "that during my business career I have spent hundreds of dollars in newspaper advertising which resulted in my receiving letters by the thousands. After reading these carefully I answered what appeared to be from men most likely to suit my requirements, telling them to come along and I would give them a trial, but I regret to say this method has proven far from satisfactory either to the man or to myself. I have come here because this is a big city and somewhere here there may be the man I want, or if not in this city, then he must be in some other place. Wherever he is I am determined to find that man."

"A point I wish to emphasize very strongly is that I have no desire to persuade any man whose present position is satisfactory to himself and to his employer, to make a change. It is right here that we get down to brass tacks. All over the country there are men filling positions far beneath their ability because they do not know of better openings. At the same time there are employers in need of just such men, because they do not know where to find them. This is the reason there are so many misfits in our business, the square peg in the round hole, don't you know?"

"Yes," we answered, "we do know, and we are going to offer what we think is the proper solution to the difficulty."

### Positions Vacant—Men Available to Fill Them

If manufacturers engaged in any branch of the woodworking industry will send us a report of any vacancies they have, stating fully what they have to offer in the way of inducements, we will treat their communications as strictly confidential, and if any woodworker who is out of employment or feels desirous of making a change, will let us know about it, stating what position he is capable of filling, we will also treat his communication as confidential. This, we think, will prove the most efficient means of taking the square peg out of the round hole( and do away with so many of the misfits in our trade.

Right at this moment there are manufacturers looking for a certain class of help, and the men that would suit are not so very far off.

What we desire to do is to publish a list, in each issue, of the wants of the employers, also the wants of the employee. Of course no names or actual location will be used in the published lists, merely say, for instance, "Wanted a stickerhand; good inducements to the right man. Apply Box——; or on the other hand, Saw-Filer would like to change to another mill. Apply Box—

This service between employer and employee will, of course, necessitate some expense on our part and we would expect those that we desire to assist to help us defray the cost to a certain extent.

We have come to the conclusion that the best way to regulate this necessary payment would be to make a charge of twenty-five cents to each enquirer for each insertion of his or their wants in this special column which we intend instituting. We would ask you to address all your letters to the Editor.

## Abolishing the Common Drinking Cup

Dr. C. J. O. Hastings, Toronto's M. H. O., has re-issued his ordinance against the use of the public or common drinking cup.

The order is as follows: "That on and after the twentieth day of May, 1912, the use of the public or common drinking cup or receptacle for the drinking of water in any public place, or in any public institution, hotel, theatre, factory, public-house, or public or private school, collegiate institute or college, and all other educational institutions, or any railroad station or ferry house within the City of Toronto, or any boat or ferry plying in Toronto Harbor, or the furnishing of such common drinking cup or receptacle for use in any such place, is hereby prohibited.

Dr. Hastings states that according to an article in the "Dietetic and Hygienic Gazette" of New York, the crusade against the common drinking cup started 350 years ago when during the plague in 1564, a professor of theology in Strausberg insisted upon individual communion cups. In the eighteenth century Metzgar, Hugeland and others pointed out the dangers of infection from the use of the common cup.

## "Made in Canada" Train

A Canadian National Exhibition on Wheels is the method adopted by the Canadian Home Market Association of Montreal and Toronto to promote the "Made in Canada" idea in Western Canada. The exhibition will take the form of a special train, which will be operated over the lines of the Canadian Pacific Railway in the west from May 15 to July 1 next.

The train will make stops varying from one hour to 36 hours at about 100 different towns and cities west of the great lakes. The interior of the cars will be arranged so as to permit of the display of products made by Canadian artisans, attractively and compactly as possible.

It is planned to show products of about 100 representative Canadian industries.

# Opportunities for Foreign Trade

The following enquiries have been received from English and other countries relating to Canadian trade. The names of the firms and their addresses may be secured by interested parties by writing to the Enquiries Department, Canadian Woodworker.

Any of our readers who are answering these enquiries, should not fail to forward references, particularly if bankers' references.

Please note the reference number when requesting addresses.

93. **Handles.**—A Liverpool firm wishes to receive catalogues and prices of wood handles from Canadian manufacturers only. Quotations must be c.i.f. Liverpool.

94. **Furniture.**—A South African firm in good standing desires f.o.b. Canadian port or c.i.f. South African port quotations on chairs, tables and other furniture.

95. **Handles.**—A Lancashire firm is open to receive prices and catalogues from Canadian manufacturers only of broom handles in 4 feet and 5 feet 6 inch lengths, c.i.f. Liverpool or Manchester.

96. **Wood turnings.**—A west of England firm makes inquiry for the names of Canadian manufacturers of wood turnings, such as dowels, spindles, legs for chair work and wooden wheels for toys.

97. **Chairs.**—A furniture manufacturing firm in Sydney, New South Wales, wishes to obtain an agency for Canadian wooden chairs, upon a commission basis, and would like to receive catalogues from Canadian manufacturers interested.

98. **Ochres.**—A Glasgow firm asks to be placed in touch with Canadian producers of ochres, and are also interested in Kaolin.

99. **Varnish.**—A firm in South America desires to enter into communication with Canadian exporters of varnish.

100. **Brushes and brooms.**—A firm in South America wishes to be placed in communication with Canadian exporters of the above articles.

101. **Furniture.**—While this firm in South America do not import furniture in large quantities and keep a large stock on hand, it would be advisable for Canadians to communicate with them, as they are large general importers of British manufactures.

102. **Machinery for match manufacture.**—It is advisable for exporters of this article to communicate with a firm in South America who are important match manufacturers.

103. **Office desks.**—A manufacturer's agent in Buenos Ayres desires to be placed in touch with exporters of office desks. Further particulars as to terms and conditions, etc., may be obtained on application to the Department of Trade and Commerce.

104. **Tables.**—A manufacturer's agent in Buenos Ayres desires to be placed in touch with exporters of tables. Further particulars as to terms and conditions, etc., may be obtained on application to the Department of Trade and Commerce.

105. **Refrigerators.**—A manufacturer's agent in Buenos Ayres desires to be placed in touch with exporters of refrigerators.

106. **Machinery for making wood pulp.**—A London firm is anxious to get into touch with Canadian manufacturers of machinery for making wood pulp.

107. **Paint, enamel and varnish.**—A south of England firm of paint, enamel and varnish manufacturers desires to introduce their goods into the Canadian market.

108. **Paints.**—A Newfoundland cooper is open to receive quotations from Canadian manufacturers of paints.

109. **Lumber.**—An established firm doing a commission business in lumber and timber is seeking the representation in France of Canadian producers and exporters.

110. **Refrigerators, washboards and step-ladders.**—A South African firm of general merchants wishes to be placed in communication with Canadian manufacturers and exporters of refrigerators, washboards and step-ladders.

111. **Household furniture.**—A South African firm of general merchants wishes to be placed in communication with Canadian manufacturers and exporters of household furniture, i.e., extension tables, small plain tables, bentwood chairs and ordinary dining-room chairs, sideboards, cheap bed-room suites and iron bedsteads, and a line of small medium priced roll top desks.

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### Great Saving of Distance

The opening of the Panama Canal will effect the following saving of distances for such ships as may choose the new and shorter route: Europe to San Francisco, 6,200 miles, and to Valparaiso, 2,100 miles; England to New Zealand, $1,600, and to Australia, 800 miles. Between American and Oriental ports the saving will be as follows: New York to Shanghai, 1,400 miles; Montreal to Sydney, Australia, 2,740 miles; and between New York and Australian ports the saving of distance will average about 2,400 miles.

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### Seek Freer Trade with West Indies

The conference between representatives of the Canadian and West Indian Governments looking toward freer cemmercial intercourse between Canada and the islands will open in Ottawa on March 27th.

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### English Manufacturers to Visit Canada

Three hundred English manufacturers will visit Canada this year, and gain information at first hand with a view of opening up warehouses, establishing connections, and transferring some of their manufacturing operations to Canada.

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### Sprinklered Loft Buildings

It is interesting to note that owners of loft buildings which are equipped with automatic sprinkler systems are advertising the fact that this form of protection is provided in their property. This is a decided innovation and in the general case has been done for only a few weeks. Several recent fires of large magnitude having pointed to the total inadequacy of ordinary methods of protection ,the sprinkler idea has come to the fore as being the principal solution of a very vexed problem. The owners of buildings carrying this sort of equipment, realizing the value of the protection to life and property which it affords, are apparently not slow to take advantage of the opportunity created by present-day sentiment in the matter.

### A Ravenous Industry

### How the Paper Makers Are Destroying the Forests of the United States

The forests of the United States now cover 550,000,000 acres, or about one-fourth of the area of the country. Forests publicly owned contain one-fifth of all timber standing. The timber privately owned is not only four times that publicly owned but it is generally more valuable.

Forestry is not practised on 70 per cent. of the forests publicly owned and on less than 1 per cent. of the forests privately owner, or on only 18 per cent. of the total area of the forests.

The original forests of the United States contained timber in quantity and variety far beyond that upon any other area of similar size in the world. They covered 850,000,000 acres, with a stand of not less than 5,200,000,000,000 board feet of merchantable timber, according to present standards of use. There were five great forest regions—the northern, the southern, the central, the Rocky Mountain and the Pacific.

The present rate of cutting is three times the annual growth of the forests of the United States. The great pineries of the Lake States are nearing exhaustion and great inroads have been made upon the supply of valuable timber throughout all parts of the country.

The heavy demands for timber have been rapidly pushing the great centres of lumber industry towards the South and West. In consequence, the State of Washington has led for several years in lumber production, followed in order by Louisiana, Texas, Mississippi, Wisconsin and Arkansas. In 1908 the production of yellow pine lumber amounted to eleven and one-quarter million feet; the Douglas fir of the Northwest held second place, with three and two-thirds billion feet; while white pine came third, with three and one-third billion feet.

The annual cut from the forests, including waste in logging and in manufacture, is 20,000,000,000 cubic feet of wood.

There is used in a normal year 90,000,000 cords of fire wood, 40,000,000,000 board feet of lumber, 118,000,000 hewn ties, 1,500,000,000 staves, over 133,000,000 sets of heading, nearly 500,000,000 barrel hoops, 3,000,000 cords of native pulp wood, 165,000,000 cubic feet of round mine timbers and 1,250,000 cords of wood for distillation.

In 1909 4,002,000 cords of wood were used in the manufacture of paper, of which 794,000 cords were imported from Canada. The demand for pulpwood is making a severe drain on the spruce forests, which furnish the principal supply. The Forestry Service of the United States Department of Agriculture is conducting investigations to determine what other woods, such as scrub pine, white fir, tupelo and the like, can be successfully used.

A larger drain upon forest resources is made by the demand for railroad ties, of which 123,754,000, equivalent to three and three-quarters billion board feet, were used in 1908. White oak, hitherto the chief source of supply, is not plentiful enough to meet this demand indefinitely, and in many parts of the country the supply of chestnut, cedar and cypress is dwindling; however, seasoning and treating methods are being found, largely through the work of the Forest Service, by which cheaper and more plentiful woods, such as lodgepole pine in the Northwest and loblolly pine in the South, are made fit for use as ties. Timber to the amount of two and one-half billions feet was used in 1907 for mine timbers. A great saving has been effected in the naval stores industry, also largely through the work of the Forest Service, by the introduction of the so-called "cup" system of turpentining in place of the old destructive system of "boxing." The new systems insure a larger product of better quality and prolong the life of the longleaf pine forests upon which the industry depends.

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### Training Employees in the C. P. R. Shops

The Canadian Pacific, at its Angus works in Montreal, have recently inaugurated a new system of training employees; and in order to encourage deserving apprentices, the company donates each year a scholarship to the best ten apprentices, consisting of complete courses in mechanical or electrical engineering. The railroad also awards two sholarships, tenable for four years at McGill University, Montreal.

The young clerks in the general and other offices at Montreal have equal opportunities with the apprentices in the shops for equipping themselves for their life work. Schools of telegraphy and shorthand have been in operation for some time, and the advantages they offer are being eagerly seized by a number of ambitious youths. There are two terms each year, and the classes meet three evenings a week, when the students of telegraphy are instructed in the mysteries of the key, taught how to dispatch trains, etc.

The apprentice of to-day if he wishes to be spared not a few vain regrets in after years, should take time to realize the advantages he enjoys over his predecessors of fifteen or twenty years ago. Then, even in large shops very few facilities were offered or were available to a lad for learning the technical side of his trade, with the consequence that his prospects for becoming anything beyond a skilled mechanic were more or less remote.

The care and attention bestowed on the apprentice to-day is such as to make some of us old timers a trifle jealous, and to wish that we had been favored with an equal opportunity. In spite, however, of all that is being done for them to-day, we fear a goodly number of apprentices are more or less unappreciative and do not take advantage of all the opportunities offered that they might. We know that quite a large number only keep themselves sufficiently efficient to scrape through the periodical examination which qualifies for increased wages.

Reference has been made to the fact that the older generations of us look jealously on the opportunities of the present. It is problematical, however, whether we would have availed ourselves much more so of these additional channels of knowledge than do the youth of to-day. Competition is keener, and a higher standard of competence is required, therefore, while opportunities for the acquirement of a more thorough practical and technical training are increased, they are not in any sense superfluous. The percentage acquired of the total knowledge available, has been and still is low comparatively speaking, and while we would place no restriction on the recreations of the present day apprentice, we suggest his diligent application to and study of the problems of his profession, so that at a period of 5 or 10 years earlier in age than that of his predecessor of another generation, he may have the mature experience at least, of the latter.

# Letter from the Glue Engineer to His Friend the Chemist

The last few years have shown it clearly, that it is not a question about what kind of glue to use for laying veneers, it is a question of what kind of adhesive; the animal glue is not "the only pebble on the beach;" we have now also to consider the vegetable as well as the mineral adhesives.

You had your own doubts about the fish glues we made, and what you wanted was the physical test, the demonstration of the binding power in these glues! And when those tests gave such uncertain results you refused to go further with the work. The same glue on the same wood would show strength figures varying several hundred per cent.; no conclusions could be drawn from such results, and the other tests were not encouraging.

It took some fourteen years before we found out how to handle that problem of making joint tests correctly, and then again your surmises were confirmed, and it was shown how necessary it was to have a physical test to go by; it was as you had intimated, not a problem for the chemist. When we had improved the methods and the appliances for making joint tests, reducing the usual variations of 100 or 200 per cent. down to 25 per cent. or less, then we could recognize more clearly, which factors influenced the joint strength figures the most. As long as the joint strength of the same glue on the same wood varied a hundred per cent. or more, each recognition was of course not possible.

The first result of the new methods was to show it clearly, that the strength of the joint depended mainly on the tensile strength of the glue itself, and that other methods and appliances were needed for the determination of this tensile strength of the glue per se. This task was next tackled and solved. And then we stumbled on to something, I believe, you have long suspected, namely this, that the jelly test is not a universal indicator of glue strength. I remember well, how often you quizzed me on that subject, and how I always said, that since Professor Lipman in the early 60's indicated the jelly test as a gauge for strength in glue, this test had been universally adopted—and practised—and how the whole glue trade of the United States to-day was based on that test. "Ever seen it proven," was once your answer, and this was thought so absolutely superfluous, that it was not even considered.

Now we know that the jelly test is not a universal indicator of glue strength; for some glues the jelly test can be used as an indicator of the tensile strength, for others it can not, and the exceptions are numerous.

One thing will please you to hear; it is about colored glues; you always objected to adding coloring material or any mechanical mixtures or fillers. As a rule the addition of a small amount of coloring matter—say one or two per cent. of best zinc white—would raise the jelly test perhaps half a grade, and nice white colored glues were accordingly one or two cents a pound higher in price. But we have now learned, that a colored glue has a lower tensile strength, and consequently a lower joint strength, than would be found in the same glue un-colored or free from mechanical admixtures. This result you foresaw, while we, judging by jelly test, and not possessing adequate methods or means of other tests, were led to believe the colored glue to be stronger and therefore better than the un-colored.

The users of adhesives will be more interested in the results derived from the tests of joint strength, because the new methods lend themselves to the determination of the gripping power in any adhesive applied as a bond uniting and holding wooden objects together. No matter whether the adhesive is of vegetable or mineral origin, the strength of the bond can now be determined with sufficient accuracy to enable the user to know what he gets in any adhesive, he may choose, which means:—the selection of adhesive can be made intelligently and on basis of the real merit in the article.

One thing more to mention, another reason why the correct determination of joint strength is of practical value—we can with such tests in combination with other comparative joint tests, such as rub-joints, get a fair idea of how much joint strength is required for various kinds of work, and in that way get a rule for what the limits of safety are for practical joining in different lines or different trades. But the most important result of these new testing methods is probably, that we can gauge the loss of the strength any glue suffers by being kept warm, and as some such losses must occur wherever animal glue is used, and as this loss in the large majority of cases reduces the glue strength to one-third of what there was originally in the glue, an exact knowledge about this strength loss is for the glue user of special importance. —From Glue.

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### Durability of Wood Cut in Spring and in Summer

Timber cut in spring and in summer is not so durable as that cut in winter, when the life processes of trees are less active. Scientific investigations sustain this statement. The durability depends not only upon the greater or less density, but also upon the presence of certain chemical constituents in the wood. Thus a large proportion of resinous matter increases the durability, while the presence of easily soluble carbohydrates diminishes it considerably. During the growing season the wood of trees contains sulphuric acid and potassium, both of which are solvents of carbohydrates, starch, resins and gums; they are known to soften also the ligneous tissue to a considerable degree. During the summer months the wood of living trees contains eight times as much potassium as it does during the winter months. The presence of these two chemical substances during the growing season constitutes the chief factor in dissolving the natural preservatives within the wood and in preparing the wood for the different kinds of wood-destroying fungi, such as Polyporus and Agaricus. The fungi can thus penetrate more quickly and easily into the interior of the wood when these wood gums are already partly dissolved and available for their own immediate use. From this standpoint it seems that the best time to cut down the tree is in the winter when sulphuric acid and potassium are present to a much smaller degree, and the fungi will not be assisted in dissolving the natural preservatives in the wood. The amount of wood gum is always less and more easily soluble in sapwood than in heart-wood and for this reason the former is usually regarded worthless for industrial purposes.

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The next best thing to a safety device is to use it.

# Defects in Present Day Varnishes

## Some Hints on "Reviving" Furniture

Defects in varnishes are as many as the varieties and brands for sale in the open market, writes Dr. L. L. Redman of the University of Kansas in the Scientific American in an article on the subject.

Some of these defects the writer goes on to say are hairlining, alligatoring (cracking), tackiness (stickiness), whitening under water, darkening rapidly with age, brittleness, dulling of the glossy surface, lack of toughness (being easily scratched), sweating on damp days if the temperature is high, and blistering in the heat of summer.

These defects may be more readily understood if I briefly describe the materials of which varnishes are composed. Varnishes are divided into two classes: oil and spirit. Oil varnish consists of resins, such as, Amber, Copal, Anine, Kauri, Manilla, Mastic, Dammar, Rosin, etc., dissolved in oils, such as linseed, tung, walnut, safflower, candle nut, soya bean, etc., and diluted with a thinner such as turpentine or benzine. A spirit varnish consists of resins dissolved in spirits, that is, volatile solvents, as for example turpentine, alcohol, wood alcohol, naptha, benzine, etc. The last mentioned varnish dries rapidly as the solvent evaporates and leaves behind a film of resins which are naturally hard, glossy, brittle, easily scratched, and resistive toward water and weather. The advantages of a spirit varnish are the speed of drying, hardness and resistance to weathering. The disadvantages are brittleness, the coated surface scratching easily, and the difficulty of application, as a spirit varnish dries too rapidly and leaves brush marks.

### Tough Oil Varnishes

The tough oil varnishes are in greater demand than the spirit varnishes although the defects in oil varnishes are numberless. How often a person sits on a varnished chair and on rising finds the loose nap from his clothes sticking inseparably to the chair and the print of the weave of his clothes left in the soft, tacky varnish. Cases have come within the writer's observation where the fine fabrics in ladies' dresses have been torn on being drawn from the sticky or "tacky" varnish. Cheap contract varnish, such as is often found on church pews and public benches generally is likely to show this undesirable quality. These varnishes have incorporated in them non-volatile, non-drying oils such as the heavier mineral oils. These oils do not oxidize and dry to a solid elastic mass, as drying oils do, and as a consequence the varnishes remain "tacky" for an indefinite time and practically never dry. There is no remedy for this defect but to cut off the poor varnish with some solvent such as, one quart acetone, one quart alcohol, one-half pint of water saturated with washing soda and one quart of benzine, in which a few ounces of paraffin or other wax has been melted. The mixture should be well shaken and then brushed over the surface until the varnish is quite wet. To prevent evaporation, cover over the article with old sacks and let it stand for twenty minutes, giving time for the solution to soften up the varnish. On removing the sacks, the varnish will be found very soft and easy to wipe off with a rag or to scrape off with a straight piece of glass or steel. When the article is cleaned and wiped thoroughly dry, revarnish with a good linseed oil varnish. The receipt given above will remove any varnish whatsoever whether old and hard or soft and sticky.

### Sweating of Varnishes

Sweating of varnishes on damp warm days is due in many cases to the presence of fish oils. These oils absorb moisture which causes the varnish to become clammy and sticky to the touch, if the temperature is above 80 deg. Fahr. The presence of oils having the power of absorbing water, accounts for the excessive dews which collect on freshly varnished boats and canoes beached on an open shore of a summer's night.

Good varnished furniture is the bane of every one who possesses it. It is "so easily" scratched, and scratches cannot be mended. Scratching will never be eliminated from furniture until a harder and tougher varnish is discovered. Scratches which appear white can not be easily obliterated. They may be obscured, however, by rubbing well with a piece of cheese cloth moistened with a solution of nine parts boiled linseed oil and one part lemon oil. Any failure to have this solution work correctly will arise from the fact that too much oil has been applied to the surface and the rubbing has not been sufficient.

Whitening of varnish in the presence of water, for example on the bottom of a canoe, is due to the absorption of water by the varnish, especially those low in good resins, and may be corrected by allowing the varnish to dry thoroughly in the open air (sunlight). This treatment causes the water to evaporate and restores the original appearance of the varnish. A spar varnish (that is, one high in resins) should then be applied to the thoroughly dry surface. If the surface is not allowed to dry thoroughly before the new coat of varnish is applied "blooming" will be the result, that is to say the varnish will have a dull smoky appearance like the bloom on a ripe blue berry.

### Hairlines

Evernone has observed minute hairlines on highly polished varnish surfaces, such as piano cases. This hairlining is the first stage in the cracking of the varnish, and as the cracks widen the surface takes on a resemblance to alligator leather. This hairlining or cracking of varnishes is caused primarily by too little oil being used in the varnish, or as varnish makers term it "a short oil varnish" has been used. The lack of oil shows the varnish to dry in a short time, perhaps not longer than eight hours, but the coating is brittle and soon hairlines and these lines in time widen into unsightly cracks. Excess of cheap resins such as rosin causes these defects to appear in varnished surfaces.

Housewives may hasten these defects by using such cheap liquid furniture revivers as brighten good varnish for a short time by dissolving part of the resins they contain. One of the best possible furniture revivers is one which every housewife may easily mix and prepare at a cost of a few cents and with no labor whatsoever. One part of lemon oil and two parts of boiled linseed oil well mixed and applied rather sparingly to the varnished furniture with a linen rag, a piece of silk or cheese cloth, free from nap and dust, will do more to preserve good furniture than any veneer sold at the present time.

# Veneer and Its Uses

## Sawed vs. Sliced Quartered Oak Veneer in the Furniture Trade

"It is easy enough," said the furniture man, "for you fellows to figure out and elaborate at considerable length on the kind of veneer we should select for a given purpose and where and how to buy it, but the chances are we have problems in connection with this buying and using of veneer that you know not of.

"Here, for instance," said the furniture man, reaching over on his desk and picking up a bunch of veneer samples of quarter-sawed oak and some sliced quartered oak, "is something you think you know a lot about, but I can tell you something that very likely has never entered into your calculations when figuring out what is best for a furniture man to buy for a given purpose.

"You see, I have here quarter-sawed veneer and I have veneer that is quarter cut, and thereby hangs a tale.

"I have just had a session with a veneer man, a man with whom I have done considerable business, and with whom I have had a dispute now and then. I have just had a complaint about the fine cracks in the faces of some of our panels, and about the splash line shelling or graining up a little and spoiling the finish.

"When I called the veneer man's attention to it, he figuratively went up in the air, and while he was there he admitted some things which I have never before been able to get him to acknowledge.

"One of those things, and an important one, was the fact that no man ever invented a knife or cutting machine that will not split the splash line of quartered oak. To put it another way, no man ever invented a knife or cutting machine that will produce cut veneer from quartered oak that is absolutely free from ruptures and will present as good a face as quartered-sawed veneer.

"Time and again in the past I have had people come to me soliciting orders for sliced veneer, and tell of the wonderfully improved machines they have, and the pains they have taken with their work, and try to convince me by arguments of this kind that they can supply cut veneer that is just as good as the sawed veneer; at least, as good on one face. Any man who really knows anything about cutting veneer knows that only one side of cut veneer is fit to turn out. As the under side, or weak side as it is called, is cut, it cracks and ruptures more or less. Some veneer men argue that they cut it so firmly that no cracks show. However, while the cracks and ruptures may not show while it is fresh, after a sheet of it has been laid away for a year or two, one will see not only cracks, but also a little shelling of the splash line on the under side.

"Because of this we know that we cannot use sliced veneer in work that involves reversing a part of it in order to get an exact match of figure. We know that we have to use it with one side out. And now I know also that it is impossible even to have the outside absolutely free from shelly splash lines and from small ruptures in the grain.

"I have had a suspicion of this fact for some time, and this veneer man has finally admitted it. He said that it will answer many of the purposes of sawed veneer, and he can cut it so firmly that there is no apparent rupture in the outside face, but he admitted that no knife can split the hard thin splash line of quartered oak; and that in cutting through, it either turns up and cuts through it clear or digs under it for a certain space and then cuts clear through, and this causes a slight wave-like movement in the cutting and produces a small amount of shelling.

"Then, when we put this veneer on a panel, or another piece of work, and sand it off, we cut away some of the outside. Consequently, we open it through to where there are ruptures in the grain. If it is thoroughly dried, well glued, and then carefully finished, they may never show up, but if there is any carelessness or poor workmanship, the result will be face cracks and shelly places that will cause complaint.

"It is complaints about things of this kind which led the Veneer Man into admitting that no one can produce cut veneer that is equal to sawed veneer, especially in quartered oak. He didn't intend to admit that primarily. What he started in to rake me about was that if I am wanting the very highest grade in quartered oak veneer, on which I can get a finish that is absolutely dependable, I should not try to get it cheaper by buying cut veneer, but should be willing to pay the extra price necessary to secure good quarter-sawed veneer. Then, my trouble will be over.

"Now, that looks simple, doesn't it? And you could have told me that much of it, but here is the part you wouldn't probably think of, and that is the part that competition plays. I may easily see the logic of this argument, but at the same time that I realize that if I pay the extra cost for quarter-sawed veneer and some competitor making exactly the same line of stuff keeps his expense down by using cut veneer, then he is going to under bid me for trade. The chances are the customer will not be able to see any difference between the appearance of his furniture and the appearance of mine. In fact, there will not be any perceptible difference so long as it does not happen to show up badly or so long as it is not critically examined with a magnifying glass. Also, he is likely to be swayed by the argument that the average customer doesn't know the difference, and fifty cents or a dollar on the price of a piece of furniture wields enough influence to often decide in favor of the cut stock of my competitor, and there I am left with the expensive quarter-sawed stock and the other fellow selling to my customer.

"It is the same way in different form all along the line. Our greatest problem is not that of figuring out which is best for a given purpose. It is the problem of economy in manufacture, and in the purchase of raw material that often enters as a determining factor, and makes things in such shape that our better judgment tells us are wrong.

"Perhaps it comes out more conspicuously in connection with quarter-sawed and quarter-cut oak veneer than anything else. About the only thing that will relieve the situation will be for you fellows who are supposed to do the educating and informing, to get not only the trade, but the dear public properly impressed with the fact that there is absolutely no oak veneer made with a knife that is equal in quality

to veneer made with a saw. It may be cheaper and may answer the purpose; may be easier to use and less expensive to clean off and finish, but the grain of the wood has been ruptured more or less, even in the best of cutting, whereas with sawed stock it has been left undisturbed. Although it costs more to get the sawed stock, it is really worth the difference, where a man fully appreciates the highest quality in veneered work."

### Time-Saving Cutters

For many years woodworkers have been making mouldings by machinery. Some have done the work crudely, whereas others have had more or les success, but one and all recognized the need of a reliable system whereby the work could be reduced to a positive, inexpensive basis.

Blackened edges, which are frequently seen in hardwood mouldings, indicate the use of inferior tools —that friction and burn because they do not have clearance or are not shaped right.

The Shimer Reversible Cutters for single spindle Shapers, Variety Moulders, etc., are carefully moulded opposite to the shape to be produced, in such a way as to have only the cutting edges touch the lumber. For Double Spindle Shapers these Cutters are made to run one way only.

These cutters will be found to be complete, inexpensive, time-saving. They are manufactured from a grade of steel which holds an edge for a long time. Being always ready to slip on the machine they will be found to be a great factor in maintaining standard grades, as well as a great help in filling orders propmtly.

If you send blue prints or samples of your work to Samuel J. Shimer & Sons, Milton, Pa., or Galt, Ont., they will make a careful estimate on Cutters that will soon pay for themselves by saving time and annoyance.

### A Splendid Catalogue

The 1912 issue of Simonds Saw Catalogue has just been received from the Montreal office of Simonds Canada Saw Co., Limited.

This is a 174 page book printed on very high grade paper and illustrated throughout with first-class halftone engravings. The full line of Simonds Circular, Band, Cross-Cut, and Hand Saws is listed, as well as several pages being devoted to Simonds Woodworking Machine Knives.

Among the new pages which appear in this catalogue and not in former issues of the Simonds Catalogue, are those devoted to,—Pit and Whip Saws, High Speed Steel Planer Knives, Cane Knives, Docking Saws, also a page showing a Simonds Crescent Ground Cross-Cut Saw fitted with the Double Horn Handle. To thus early catalogue this new handle is an indication of the way the printed matter of the Simonds Canada Saw Company is kept up-to-date according to the requirements of the supply dealers and of the lumber trade.

This catalogue is sent to all hardware dealers who may request a copy. It should be in every store. A special issue has been prepared for the use of filers and millmen who want a convenient pocket size catalogue for ready reference. Write Simonds Canada Saw Co., Limited, Montreal, for a copy of their 1912 catalogue.

### Spontaneous Combustion from Oil and Sawdust

It may be that many of the readers are already acquainted with the fact which I am about to state, writes a correspondent in Building Age, but I only discovered it by actual experience a short time ago, and think it may be of interest to others. It all happened through an accident, and in this way: A tin of boiled linseed oil was spilled in the paint shop. Some redwood sawdust was brought in and spread over the oil to absorb it. This sawdust saturated with the oil was then thrown outside the door of the shop on to some waste lumber that happened to be lying there. The incident occurred at noon-time during the summer when the sun was shining upon the lumber.

About an hour afterwards, one of the workmen, having occasion to go to that particular locality, saw smoke rising from the lumber pile. Investigation showed that a fire was smouldering. There was, however, no harm done, but the incident evidently set the boss to thinking, for he carefully gathered up the rest of the sawdust and took it out to the middle of the yard, where he spread it upon a flat stone. In half an hour the sawdust was blazing, and yet when it was placed on the stone there was not a spark in it.

The question naturally arose, would the timber and sawdust have caught fire if the oil had not been there? Had it not been discovered in time most likely the shop would have been destroyed, thus adding another to the list of mysterious fires.

### Wasting Light by Dark Decoration

The people of the United States waste in the course of a year $33,000,000 worth of gas. This statement is made by the president of the National Commercial Gas Association, William J. Clark. One of the ways in which gas is wasted is by having wall coverings that absorb the light. Colors differ immensely in their power of reflection. The reflective power of yellow wall paper, for instance, is 40 per cent., while that of emerald green is only 18 per cent. Dark brown paper reflects 13 per cent., and orange as much as 50 per cent. It pays to be clean, for a yellow painted wall that is soiled has only half the reflecting power of a clean yellow painted wall. Wrong types of burners are another source of waste, and so are burners that are out of order. Having the chandelier too high throws the gas where it isn't needed, and so wastes it. Some people try to secure what they call a cheerful effect by having bright spots of gilding, polished brick-a-brac and inconsequent mirrors to catch the light. This is a mistake; it simply wearies the eyes. Light should be thrown where it is needed, and reflected from broad surfaces.

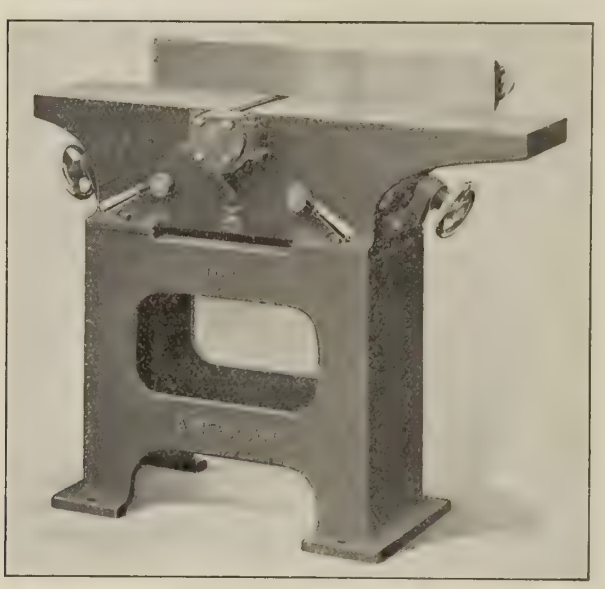
Electric smelting and refining processes are said to produce steel that is denser and more homogeneous than open-hearth steel of the same general composition.

### The Morton Dry Kiln Receive Two Canadian Contracts

The Morton Dry Kiln Co. has just received a contract from J. W. Kilgour & Bro. Ltd., Beauharnois, Quebec, for a Morton Kiln 136 ft. long by 20 ft. wide and also another contract from the Tobin Mfg. Co., Bromptonville, Quebec, for a Morton kiln 84 ft. long by 18 ft. wide.

# A Jointer for Small Work

The illustration shows the American Hand Jointer for small work, such as required in the pattern shop, chair and furniture factory and the manual training school—for which it was principally designed.



It will joint material up to 6 in. wide and has a cutting capacity up to ⅜ in.

The cylinder contains three thin knives and is the latest improved safety type.

The throat over the cylinder is less than 1 in. wide when the table is in normal position.

These two features form a safety device which largely eliminates the danger contingent upon the operation of a hand jointer.

The method of oiling the bearings, which are the radial ball collar type, is very effective; the balls running in a well of oil and requiring very little attention.

The illustration shows th jointer mounted on a supporting frame, but ordinarily the machine is placed on the bench.

By the use of adjusting screws under the table the rear table is brought to the level of the cutting circle, and the infeeding table is adjusted to any required depth of cutting.

If you are interested you can get all the information you want from the American Wood Working Machinery Company, Rochester, N.Y., who are the makers of this Jointer.

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### Not That Kind of Sinner

A story is told of a certain clergyman who was fond of making sharp remarks. One day, after a fall of snow, he was wending his way along a country road in company with a parishioner. His companion suddenly stepped upon a hidden slide, and came down with a thud.

Looking gravely down at him, the pastor solemnly said:—

"Ah, my friend, sinners stand on slippery places."

"Yes, I see they do, but I can't," was the indignant rejoinder of the fallen member of his flock.

### Tools for Special Purposes

This is an age of specialization. Tools and machinery are demanded for a specific purpose—to do one thing well—to do it better and faster than with present practices and tools.

Recognizing this fact the manufacturers of the Shimer Cutter Heads began several years ago to prepare for each branch of work a special tool—a Cutter Head which should be the best of its kind, embracing all the labor and time-saving features possible and made to work interchangeably with other tools.

These Cutter Heads while built on one general plan, differ in their special application, and embrace Heads for making Flooring, Ceiling, Siding, Wainscoting, Ship Lap, O. G. Batten, Jointing, Door and Sash Mouldings, besides being adapted to the making of many specialties.

This interchangeable system of Shimer & Sons has met with universal favor among mill men, especially as these Cutter Heads are so low in price that a variety of them can be purchased for a comparatively small sum of money.

There is not a tool shown in the Shimer Catalogue which is not rendering good service somewhere. The large line of Matcher Heads are built to suit any pocket book and to meet conditions arising from day to day. They are made for the fast feed matcher taking stock at 200 feet per minute as well as for the machines between the fastest and the slowest. A study of this book will put you in a position to buy intelligently. If you do not have a copy send for one at once to Samuel J. Shimer & Sons, Milton, Pa., or Galt, Ont.

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### New Inventions

A new combination lock for house doors carries most of its operating mechanism on the spindle below one of the knobs.

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Apparatus to determine the percentage of carbon in steels by burning them in pure oxygen under pressure has been invented in France.

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A producer gas-propelled automobile has proved successful in Scotland, where is was invented.

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VENEER LATHE.—A. W. Dodge and J. B. Dodge, Coudersport, Pa. The object of this invention is to provide a lathe for cutting veneers from a revolving log, and having a cross section corresponding in shape to the article to be produced, such, for instance, as the clamping members of spring pressed clothes pins.

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LUBRICATING PULLEY.—H. G. Vance, 4261 Moffett avenue, St. Louis, Mo. The device forming the subject of this patent includes a bearing divided at the center and surrounded by a chamber for the lubricant. Between the opposed ends of the bearings the shaft carries a frame which mounts on radial arms toothed wheels adapted to rotate on their own axes, in addition to travelling with the rotation of the shaft. The centrifugal action normally tends to throw the oil away from the shaft, but the individual action of the toothed wheels throws the oil in the reversed direction against the shaft and bearing surfaces.

# Flooring and Mill Work

As the hardwood flooring business increases in magnitude, there naturally develop features in connection with it, certain complaints coming in from time to time, and among them one which needs special attention. We refer to rough handling of this flooring. Not only sometimes, but entirely too frequently, such flooring, which has been very carefully made and finished, when it gets into the hands of the carpenter who lays it, not only has the face scarred up in places, but the tongue and groove are battered, the tongue entirely off sometimes, the whole looking so rough that one might speculate on why we should take so much pains with making it, and then so little in handling it. There never has been enough respect shown finished lumber in handling it, either in the yard or in loading or unloading it. We are used to that, however, as applied to pine flooring, but when it comes to oak, with its higher and better finish, it is all the more easily marred through rough handling.

One who looks for a remedy soon concludes that unless some means for handling this flooring more carefully is put into practice, so that it may reach the hands of the users in better shape, it will probably soon be found necessary to crate it for the better class of customers. When a man pays the price that good hardwood flooring demands these days, he realizes something of its value and naturally expects it to be handled carefully and come to him in good shape. When he finds it has been handled like rough lumber, and comes badly scarred up, he may find some fault with the man from whom he bought it, but in the end he will usually find that the fault is in the rough handling in transit, and that it must either be more carefully handled, or packed in crates or something of the kind, so that it will not be damaged. Moreover, as timber grows more valuable, which it naturally will in the course of time, the need for reform in this matter will become more imperative, and while the cry is strong even now, it should no longer be unheard, with both money and satisfied customers to be gained by giving more attention to the care of flooring in transit from the mills to the customer. It is worth while for the mill man to see that it reaches the customer in good shape, as his reputation hinges on the buyers' verdict in the end.

It may well be said, too, that this idea applies not only to flooring, but to all kinds of finished lumber and mill work. As it becomes more valuable, and as we come to put better finish on it, as is the tendency right along, it becomes all the more important to see that this good work is not sacrificed through rough handling in transit from the mill to the customer. It doesn't matter, either, whether it is simply a question of delivery in one's own town, in his own wagons, or a question of shipping by rail. It is the condition of the stock when it arrives, the mill owner is or should be interested in. He has a better chance to safeguard it, if the delivery is within the bounds of his own territory, for he can so equip his wagons and so train his drivers and delivery clerks that it may not be damaged in transit. That is, he can if he will look after it; if he doesn't, it is just as likely to be damaged in local deliveries as when shipped by rail. However, no matter where it is to be delivered, it is the matter of seeing that it reaches its final destination in good shape that is the important item. The up-to-date mill man should carefully guard his products in transit in every way possible.

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### There Are Two Kinds of Hustle

There are two kinds of hustle or quick action in connection with mill work besides the humorous pictorial, Bull Hustle. One kind pertains to the movement of the machines and the man in charge thereof, the other to the dispatch with which the institution is able to fill orders. Sometimes both of these go together, but quite frequently they do not; quite frequently the shop that makes a great hustle and bustle about the speed and feed of machines is quite slow and indefinite about filling orders promptly, probably because more energy is put into getting orders than into shipping them. And now, without desiring to detract in any way from the stimulating qualities of quick action or high speed in mill or factory, it may be said that quite frequently quick action or promptness in taking orders is the more important of the two.

Some people get orders in plenty of time ahead so that the planing mill can work them through the regular process without sacrificing convenience to dspatch, but to a majority of customers there comes times when rush orders are unavoidable, and with quite a large class of customers, when they want anything they want it immediately. A housebuilder wanting anything from a door frame to an elaborate grill, generally wants it right away, and if one man can't furnish it, he is likely to hunt some other man that can. It is, therefore, not only worth while, but decidedly important, to give attention to the idea of quick action in handling orders. Sometimes it may cause a little inconvenience, may cause a more frequent changing of machines so as to facilitate the movement of the stock through the mill; but, if not carried to an extreme, it pays. It pays in pleased customers. And when the work is done promptly one feels much more like insisting on prompt settlement than if he had delayed the work and put the customer to inconvenience. Moreover, when a customer waits, he generally takes his time about paying.

In short, it is well to study not only the customer's needs, but his whims, and cultivate the habit of quick action. Not quick action of the Bill Hustle, of the spurting or destructive order, but real promptness. Customers may not fully appreciate it all the time, but it will come home to them at times, and besides, will at least keep them satisfied. And all know that satisfied customers are essential to the future prosperity of any industry.

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Either a dull knife or green lumber makes a poor job of milling ceiling or flooring, and when you get a combination of both there is so much depreciation of grade on account of poor work that it is time to stop and sharpen the knives and dry the lumber.

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To retain the bright appearance of the wood face and figure in either factory or mill work, the stock must either be used while it is fresh from the machines or must be carefully piled in the dark and protected from both light and dirt.

# The Elliot Woodworker

## Runs by Alternating Current

Patented in Canada, November 1910
United States Patent Pending

THE cut shows the Elliot Woodworker set for ripping.

The bed of the machine swings on a quadrant fastened to the bench, enabling the machine to be set for cross-cutting, or at any angle for mitering, routing stairs or similar work.

The carriage slides on the bed and is drawn forward by hand, the material to be worked remaining stationary on the bench,

The saw-shaft can be raised or lowered so that the router or saw can cut to any depth desired.

Can be carried from room to room or outdoors as easily as a bench.

On the reverse end of the shaft can be placed an emery wheel for grinding tools, or a bit for dowelling or mortising.

A special feature of the machine is that by replacing the saw with a dado head it will rout out stair stringers with any desired wedge room or cut 1¾ inches deep in one cutting.

With each machine is supplied one ⅞ and one ½ inch dado head, one cross-cut and one rip saw, one boring chuck and ⅜ inch bit for dowelling, and one emery wheel.

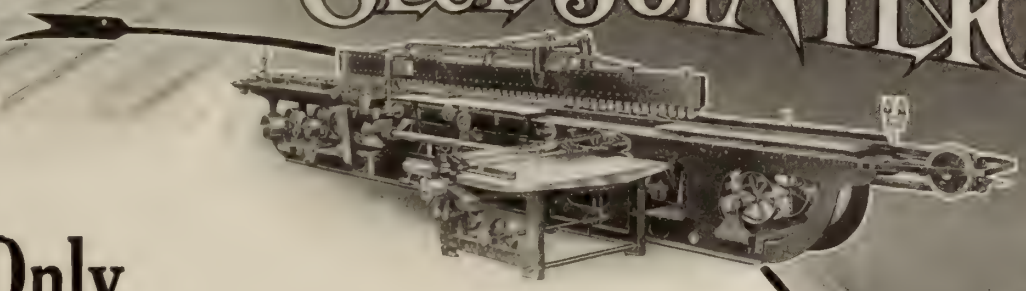
Over 50 Elliot Woodworkers were sold in Toronto in 1911 to carpenters and builders, whose names can be given as references.

For particulars, prices and terms apply to

**The Elliot Woodworker Co.,** South-west cor. Bathurst and College Sts. **Toronto**

Phone College 7656

# The Linderman Automatic Dovetail Glue Jointer



## Not Only Saving, But Moving the Cuttings

Six months ago a prominent Canadian Manufacturer installed a Linderman Dovetailer in his factory to effect a certain saving in the purchase price of his lumber and to reduce the jointing cost.

An unexpected change was noticed from the first—**more space in the Cutting-up Department.** This space by the old method, was used for the storage of narrow widths which could not at once be worked into the finished product. Fewer trucks filled the room and—

## There Was Noticeable Reduction in the Kindling Pile

They understood at once why their cost sheets showed more finished articles from a given amount of material.

They write—"We frankly admit it is all you claim, satisfactory in every way, both with respect to the quality of work it does and as an economizer of materials."

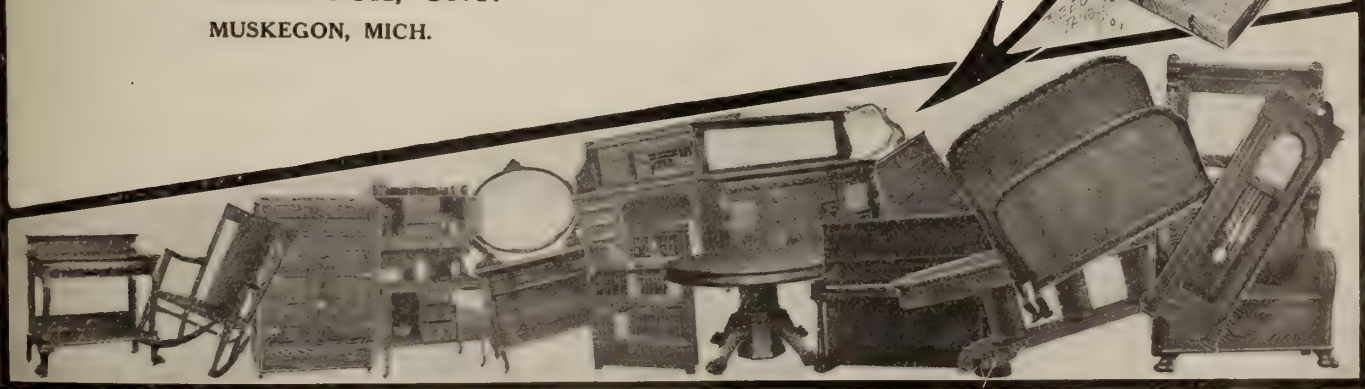
**What the Linderman Dovetailer does for others it will do for you.**

## CANADIAN LINDERMAN CO., LTD.

WORKS AT

WOODSTOCK, ONT.

MUSKEGON, MICH.



# Home Made Cutters and Babbitting Hints

### Home-Made Cutters

To file a home-made knife so it will cut any of the standard mouldings entails experience and tedious work. Much time is expended on Cutters for even the simplest mouldings, while the more elaborate ones, with their curves and offsets, consumes time enough to more than pay for up-to-date Reversible Cutters. Then again the home-made cutter must be re-filed to shape at each sharpening. Unless great care is observed in doing this, it will be found that after several sharpenings the shape of the mould has become so distorted as not to match with the original.

In making Reversible Cutters the shape of moulding is turned and ground into the cutting wings. Especially is this practice observed by Messrs. Samuel J. Shimer & Sons, Milton, Pa., and Galt, Ont., the largest cutter manufacturers in the world . The sharpening is done by filing from the inside of the wings, consequently the shape never changes. The Shimer Cutters are also clearance ground, do not friction and burn the lumber, and as a result do not dull easily.

Reversible Cutters for the Single Spindle Shaper or One-Way Cutters for the double spindle machines will stop the detail work in your mill, consequently you will be saved not only time and annoyance, but money.

The Shimer Catalogue and Pattern Book is full of standard patterns, carefully numbered and priced, which you are at liberty to use. If your work can not be conformed to any of the standard patterns shown, send a wood sample or blue print of what is desired and cutters will be made to reproduce it.

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### How Artificial Limbs are Made

The process of manufacturing artificial limbs involves first the boring of a hole throughout the entire length of the block. With this as a nucleus, the entire inside is hollowed out, leaving but the shell of the original block. It is then shaped down on the outside to somewhat the semblance of a human limb, and is carefully smoothed and sandpapered. Holes are bored through the calf of the legs for ventilation purposes, and then rawhide is glued over the exterior, which, drying, shrinks perfectly tight. A thick coat of varnish gives the finishing touch. Willow blocks of similar character are also used in what are known as extensions, namely, specially shaped blocks for equalizing the length of deformed lumbs.

An artificial foot is never made in one piece with the limb, but is shaped out of a separate block and joined to the "socket" by a steel ankle joint, so contrived as to work when walking as readily as one's natural foot would do. Artificial feet are always provided with felt foot casings over which a soft dressed leather is glued.

Red willow of the best grade obtainable is the only lumber used for this purpose. It is bought in round blocks just as they are cut from the logs, in lengths varying from sixteen to twenty-two inches, and in diameter from five to ten inches. Air-dried stock is essentially the only kind that can be used, as it has been proven practically impossible to prevent checking along the grain of kiln-dried blocks. Every effort has been made to prevent checking, such as painting the ends of the blocks, but so far nothing effective has been devised.

### Babbitting Hints

The manner in which a babbitt metal is applied is an essential factor in the results to be obtained—this, however, involves no difficulties whatever, as the directions for using babbitt metals are exceedingly simple and are based upon common sense reasons. There are really only two important rules to observe in pouring a babbitt metal:

First—Have all your preparations ready and pour metal as soon as it is hot enough to char a white pine stick. Originally, when this rule was made it was thought that the metal was injured by overheating and it is true that superheating any metal does impair its vitality, but as a matter of fact it was only recently that it was discovered that if a white metal alloy was left in a highly fluid state for too long a time the various ingredients of which it was compsed would separate, the lead being the heaviest would gradually settle on the bottom and the tin and antimony would work to the top and a bearing poured in that condition would have soft spots (lead) and hard spots (antimony). As a babbitt metal is a mechanical mixture, it is important that it should be poured in a homogenous condition.

The next rule is to heat the box and mandrel. If a metal is poured into a cold box and around a cold mandrel it will check its free flow and produce a poor casting. A cold mandrel produces a thin chill on the face of a bearing and as this chill does not adhere very tenaciously to its comparatively soft backing it will be torn loose by the grinding force of shaft and slough out of the box. Heating the mandrel also burns off any grease or moisture that is liable to be deposited upon the mandrel by finger prints or from other sources and if allowed to remain upon the mandrel they will expand into gas when covered by the hot metal and this gas will hold back the metal and cause a blow hole in face of bearing. The low grades of metals are liable to contain ingredients that produce blow holes no matter what precautions are taken to prevent.

These two simple rules cover practically all the law and directions for babbitt pouring. There are several other points of minor importance to be observed. If possible, a metal should be peened before it cools off, as a hot metal yields more readily to the blows of a hammer and there is no danger of ever cracking it. Any oxide or scum should be held back and not allowed to enter the box. When a metal begins to change from a silvery to a yellowish tinge indicates the best time to check the heat.

The lack of proper knowledge of these simple rules has frequently resulted in a good metal being condemned or failure to secure maximum results. The importance of reducing frictional resistance as a means of gaining an increase of power is obvious. It will often save the necessity of overloading the engine. This subject is well worth the careful consideration of every user of babbitt metal.

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### Return of Timber Limit Sale

Mr. Mageau, M.P.P. for Sturgeon Falls, has given notice of motion in the Legislature calling for a return showing information concerning the sales of timber limits sold by the Province of Ontario since February 1, 1905, to date.

# Noticed on the Editor's Travels

## New Building Methods—Facts About Kindersley

### New Building Methods

One of the latest ideas for carpenters and builders is the new Elliott Woodworker. This machine is the invention of W. A. Elliott, who is an old builder and mill man of 30 years' experience. On looking over the different so-called portable machines for carpenters' use in the building, Mr. Elliott came to the conclusion that not one could fill the bill. They were either too clumsy or did not do the work required on the job. On thinking over the matter, he got the idea of a motor moving backwards and forwards, with a saw swinging on a pivot like a miter box. Inside of a week he had a machine running, and was delighted to find that it exceeded his expectations. He then took out patents in Canada and U. S. and put the first machine on exhibition in the Canadian National Exhibition, Toronto, 1910, where it caused a sensation among the woodworkers. The first machine was sold to Weismiller & McKenzie, Queen street, Toronto, and has been running ever since.

Mr. Elliott then put in a small plant and started to manufacture the machine, and by studying it in actual use, and improving where necessary, has evolved the present Elliott Woodworker.

The firm has lately moved into larger premises at Bathurst and College streets, and each machine is tested before being shipped.

There are now some fifty machines in use in Toronto, and a number in other places, and everyone who has bought one has been delighted with the ease of working, and money saved. These are a few testimonials received by Mr. Elliott:

T. P. Stewart, Oriole road, Toronto, who has two machines at work on apartment house work, claims he has saved the price of the machine in three months.

Burelle & Tait, Oakville, Ont., have had a machine running for a year, and say they paid for it on two $1,000 frame houses, and that no carpenter would do without it if he knew what it could do.

Gifford & Buchanan, Hazleton avenue, Toronto, say that on the last six houses they built they saved $200, and as they had the same men, material and plans, they can only give the credit to the machine.

Grant Bros., Logan avenue, Toronto, say they would quit the business if they could not get the Elliott Woodworker.

Albert Welch, Richmond street, Toronto, says it does all that is claimed for it, and a little more.

Among others using the machine we can refer you to: Keer & Martin, West Toronto; Jas. McKenzie, New Trust & Loan Building, Toronto; Sylvester Gee, Grace street, Toronto; Mr. Doble, Sumach street, Toronto; Mr. Avent, Conduit street, Toronto; Mr. Robinson, West Toronto; Bennett Thrail, Hamilton; W. A. Sills, Brantford, and others.

The machine runs by an ordinary house current, and can be placel in a shed or on the job, and a temporary service put in. It is bound to revolutionize the building business, so be wise and write at once for prices, etc., to Elliot & Co., S. W. corner of Bathurst and College streets, Toronto.

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Northern European forests consist almost entirely of white and pitch pine, of which nearly 70 per cent. is white.

### Kinsersley

Situated on C.N.R. Saskatoon-Calgary line, 126 miles from Saskatoon, 200 miles from Calgary.

Freight and Passenger divisional point; has large roundhouse, machine shops, freight and passenger yards, and freight sheds, together with a fine commodious depot.

Population 1909, nil; 1910, 500; 1911, 800 and is growing rapidly. These are not estimates, but the result of the civic census taken each year.

Assessment, 1909, nil; 1910, $325,000; 1911, $455,000. Estimated for 1912, $800,000.

Public works consist of $30,000 school, finest in Western Saskatchewan, fire hall, town hall, graded streets and sidewalks throughout entire town. Construction of municipal electric light plant and installation of municipal waterworks system under way.

Distributing centre for over 6,000 square miles of territory, and with the completion of railway lines now under way, will control double this area.

Distant from nearest large town, north 40 miles, east 70 miles, south 125 miles, west, 200 miles.

Nationality of farmers and citizens,—Canadian, American and British.

Land,—3,000,000 acres of chocolate clay loam, by Government analysis the best for grain frowing in the world. 90 per cent. arable.

Average yields: Wheat 25 bushels per acre; flax 18 to 20; oats 40 to 80.

Business houses include 4 general stores, 3 hardware stores, 6 implement houses, 7 lumber yards, 3 blacksmith shops, 1 machine shop and garage, 1 harness maker, 1 baker, 2 newspapers, 5 livery stables, 2 grain elevators, 2 hotels, 3 furniture dealers, 2 barbers, 3 pool-rooms, 1 bowling alley, 2 flour and feed stores, 2 confectioners, 1 milliner, 4 restaurants, 4 real estate dealers, 2 jewellers, 2 tailors, etc., etc.

Business openings: Flour mill, linseed oil and flax twine factory, woodworking factory.

Churches, 3; Presbyterian, Anglican and Methodist.

Government rural, local and long distance telephones; telegraphs, express companies, Dominion Land Office, daily train service to Saskatoon.

Kindersley is the centre of the greatest uninterrupted grain growing land in Canada.

Detailed information about anything cheerfully furnished by

J. D. McLeod,
Secretary Board of Trade.

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### Building Trade Association

Representatives of the Toronto Builders' Exchange were speakers at a meeting held by the St. Catharines building trade, held in that city recently. The meeting was a very successful one, and indications point to the fact that St. Catharines will shortly have an association.

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In one year over 63 gallons of creosote and nearly 17 million pounds of zinc chloride were used in preserving timber in the United States. There were also used small quantities of corrosive sublimate, watergas tar, crude oil, and refined coal tar.

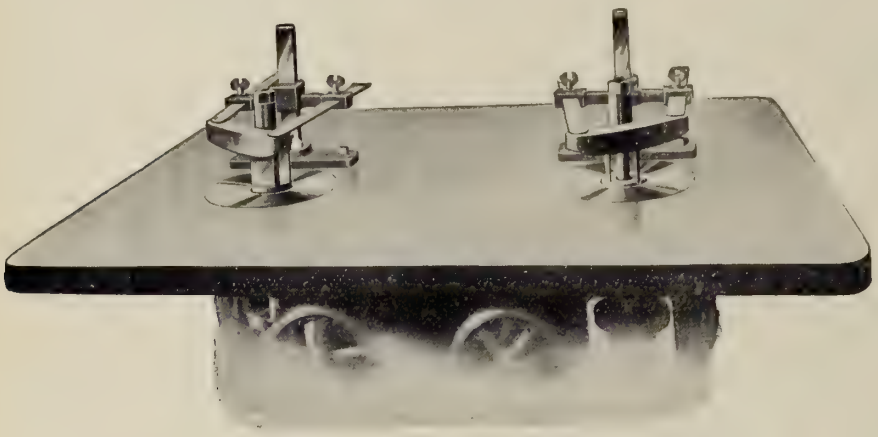
# New Shaper Guard

### A New Shaper Guard

A new safety device, a guard for the shaper, has been perfected and placed on the market by J. A. Fay & Egan Company.

This guard is acknowledged by mechanics as the most practical device yet offered for use on a shaper. As will be seen from the illustration, the guard is mounted on a standard set into a plate which is bolted to the table, and can be attached to any style shaper. It is adjustable both vertically and horizontally to accommodate different thicknesses and styles of stock. The adjustments are easily and quickly made.

This guard affords perfect protection to the operator, complying with all safety appliance laws, in every respect. It is not in the way of the operator in performing his work—in fact the knowledge that he is secure from danger will result in an increased output.



This guard protects the employer as well as the operator—as an employer permitting a shaper to be operated without a guard would be liable for any injuries sustained by the operator, and would have no defence to an action at law for damages. A few dollars invested in a guard is really an insurance against the probable loss of thousands of dollars in damages later on, and now that there is a really practical guard on the market there is no reason why every shaper should not be equipped with it.

For further information in reference to these guards, application should be made to J. A. Fay & Egan, 153-173 W. Front street, Cincinnati, Ohio.

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### How to Tell Age of Tree

The sawed trunk of an oak will reveal the age of the tree if you count the rings from the centre to the outside. They will tell you more than this. The rings vary in width, and, by studying them closely, you can say, "This year, eighteen years ago, was a fine one. There must have been plenty of warmth and a fair amount of moisture for the tree made big growth. And this, thirty-one rings back, was a lean year, cold and with a lack of sunshine, for in that year the growth was but two-thirds of the average." In the same way glaciers are useful. The ice shows layers resembling the rings in a tree-trunk. Each layer represents varying thicknesses the severity of a winter's snowfall, and by their past winters can be roughly calculated.

### "5000 Facts about Canada" for 1912

The 1912 edition of that popular and indispensable booklet, "5000 Facts about Canada," compiled by Frank Yeigh, the widely known writer and lecturer, and author of "Through the Heart of Canada," is now out and is replete with new matter, including an outline map of Canada, a calendar and the new census figures. In compact form is found a wealth of facts and figures of the Dominion that will prove a revelation of our natural resources and growth. The mass of information, gathered with infinite pains, should be in the hands of every intelligent Canadian, and the wide sale and popularity of the publication is easily understood. Copies may be had for 25 cents from The Canadian Facts Publishing Co., 667 Spadina avenue, Toronto.

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### The Engine Room the Engineer's Place

Should the operating engineer be compelled to leave the engine or boiler room while it is in operation, especially when he does his own firing? Aside from the matter of safety, can the manufacturer afford to allow the machinery in the steam plant to operate without an attendant at hand? By compelling the engineer to do outside work, a saving of a few dollars may be made, but one slight accident, which probably could have been prevented had the engineer been present, will wipe out all of the saving made by the outside work he may have done.—Power.

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### Mahogany and its Many Imitations

The problem of how furniture manufacturers can work up annually 40,000,000 feet of "mahogany" into furniture, when the cut of that wood from forests does not exceed 18,000,000 feet a year, is explained by a writer in a recent issue of The Building Age. He says that it is interesting to note that over twenty different kinds of wood, bearing a resemblance to the trade as genuine mahogany, and, besides, there are several kinds of wood stained to imitate it.

In the present circumstances, therefore, when the demand for mahogany is greater than the supply, continues the writer, unusual interest attaches to such woods as cariniana, or Columbian mahogany, which is acknowledged not to be mahogany, but which is so similar to it in color, grain effects and working qualities, as to serve for the rarer wood.

The statement is made that, while cariniana differs widely in its botanical and anatomical characters from true mahogany, its close superficial resemblance to mahogany, and its physical properties at once distinguish it as a high-class cabinet wood.

When properly seasoned it does not warp, check or shrink, while much of the lumber is beautifully figured. It works well, takes a filler readily and can be highly polished.

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The physiologists tell us that we have five senses, and yet some folks act as if they had none.

# The Mountain and Coast Catalogue Now Ready

### The Ontario Sash and Door Association Will Please Note That the Mountain and Coast Catalogue is Now Ready

The Mountain Sash and Door Association will please note that the catalogue of standard sash, doors and mouldings, arrangements for which were made several months ago by representatives of the Mountain and Coast associations and the Retail Lumbermen's Association, is now about ready for circulation. The contents include all the lines commonly used in the trade. The catalogue is in book form. All obsosete sizes and numbers are dispensed with. The object has been to standardize the different sizes and numbers and in future, instead of fifteen or sixteen lists as were used in the past, everything in the lines mentioned will be bought and sold according to standard sizes and numbers and according to the new standard catalogue which is now being used. The territory covered will extend from western Ontario to the Pacific coast. The circular gotten out some months ago giving the numbers and sizes of a number of the principal lines of mouldings will be included in the catalogue. The catalogue will be a great convenience for all engaged in the trade and will put an end to many of the inconveniences experienced in the past because of the lack of some such standard.

The Canadian Woodworker expects to see a similar catalogue issued shortly for the use of eastern mill men.

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### Thin Steel Knives

for planing and surfacing are being adopted by many of the largest and best mills in the country, as well as the smaller progressive mills. These knives are made from a special brand of steel, which in the old, heavy slotted fashion would be too costly to use. A thin blade, however, can be made of this special steel at a cost very little in excess of the ordinary machine knife.

One of the best grades of this kind of knives and one which is perhaps in most general use is the Bedee Brand manufactured by Samuel J. Shimer & Sons, Milton, Pa., and Galt, Ont. This special self-hardening steel knife under the Shimer treatment, is very dense in grain, strong and tenacious, well calculated to withstand the knots as well as the fibrous cross-grain which is characteristic of the lumber of some locafities.

The time lost in stoppages to sharpen up the old-fashioned soft slotted steel knives, will soon pay for the Bedee Knives because they hold an edge from one to five days at a single sharpening, according to the class of lumber they are used upon.

Bedee Knives are recommended by users as the best that can be procured. They are furnished by Samuel J. Shimer & Sons in any length or thickness, and it will be to your interest to write the mfor particulars and prices, stating your requirements.

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### Build Skyscrapers Like Pyramids

Building Commissioner Ericcson advocated a pyramid construction for future Chicago skyscrapers in an address before the Building Managers' Association, which met there. The plan, he declared, would give a maximum of light and safety. "A hundred-foot perpendicular wall, then an inset of five feet and another 100-foot perpendicular wall, and then another inset of five feet," said the commissioner, "and all danger of collapse would cease."

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### Belt Fasteners or Laces

A writer in an English trade paper savs:

Some short time ago, I chanced to be in an engineers' supply store, where a large assortment of articles were displayed. It was the usual collection—anything from a chain tackle to a belt punch, but what struck me most was a large quantity of rawhide belt laces. I, being curious, asked if they sold many of them. "Oh, yes; large quantities," the salesman replied; "we have our regular customers, who order a lot periodically." "But surely they are used for other purposes than lacing up belts?" I queried. "Oh, no; why do you ask such a question?" "Well," I said, "twenty years ago we all used the rawhide or pigskin laces for our belts, because we had no choice in the matter. There were not such an array or assortment of belt fasteners to choose from as there is now, and so belt laces were used for all belts. Nowadays, we have a large and varied selection of many kinds of fasteners for all classes of makes of belting—stud, plates, grips, wire lacing, wire hooks, bifurcated rivets, cements, Alligator flexible joints, etc., etc. Surely," said I, "with such a variety to choose from, I may be pardoned for asking at this time of the day what rawhide belt laces are used for." I fancy, however, it is the same old tale—they were good enough twenty years ago to repair belts with, why should they not be good enough now? Some may think so. Evidently a good many do, but we move quickly in these days of high-speed machinery. What was good enough twenty years ago cannot possibly be expected to drive a modern wood-working machine, with its high speed and small pullers. Why, the pound of that lace would soon play Old Harry with the best of good bearings. We who move with the times, or try to, use flexible belt joints in some form or other. They save the jar and reduce the vibration to a minimum. They are more economical, more easily applied, and very much more efficient than the old-fashioned belt laces.

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### New Incorporation

The Northern Lumber Company, Limited, is incorporated with head office at Canora, Sask., and capital of $200,000.

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### How They Ran

A lawyer was cross-examining an old German about the position of the doors, windows, and so forth in a house in which a certain transaction occurred.

"And now, my good man," said the lawyer, "will you be good enough to tell the court how the stairs run in the house."

The German looked dazed and unsettled for a moment.

"How do the stairs run?" he queried.

"Yes, how do the stairs run?"

"Vell," continued the witness, after a moment's thought, "ven I am up stairs dey run down, and ven I am downstairs dey run oop."

# The Profitable Working of a Wood-Working Machine Shop

The first necessity for the above lies undoubtedly in securing a thoroughly practical man as foreman, who understands the whole process of manufacture, and is capable to take full charge of both men and machines and the entire working of everything pertaining to the business outside the office. He should have the full confidence and support of his employers, and should be responsible to the firm for the profitable working of the works. There are plenty of such men about, who could make money for their employers, if given a free hand and the necessary support; such men have had more experience of men and machines, and certainly know how to get the most out of them, and also know when they are giving of their best for the wages they receive. He should have all orders sent to him daily out of the office, with instructions as to what is wanted first, and any alterations as circumstances arise should be given to him at once—he to be alone responsible to the firm for their execution. All suggestions re alterations to machines, etc., tending to increase the output or efficiency, should have the careful attention of the employer, and if it is shown to be advantageous to the firm it should be adopted, and thereby the foreman is encouraged to further effort in the same direction. There is no surer way of stifling a man's efforts, and nothing takes all interest in a business out of a man sooner than laying all his suggestions on the table without alteration or attention; such treatment very soon reaps the reward it deserves. Any man who intends to work wood-working machines for profit must reduce the operation to a system. First, the workmen and boys' time should be checked each time they start or leave work by a time recorder. Every machine or saw should have an output measurer attached, to check the work done and waste, this record to be entered in a book daily and priced out, so that at the end of the week you may tell at a glance what each man or machine has earned, what part of the works is profitable and what is unprofitable. If you also took the trouble to record the feed speeds of each machine, it would be possible to estimate the number of hours each machine was running during the week and the number of hours lost by stoppages for setting machine, belt repairs, etc. In a lot of cases this would be a revelation, and here is a field with a very large scope for the foreman with a free hand, and one from which a good profit could be made for the employer. These particulars could be kept for a small sum each week, which would be repaid many times over by extra output, without all the supervision required without them, and thus relieve the foreman, so that he would be able to look after things of greater importance than looking after men who always waste time when no check is kept or the opportunity occurs. In any works where more than one machine of each class is kept, one or more, according to number or circumstances, should be speeded up to the limit for flooring and matching, and do nothing else, and thereby increase the output; and one machine speeded slower to do all heavy work, such as spouts, etc., that require the cutters to hang out a long way from the block, and any odd jobs; this would save a vast amount of time in changing. Same with circular saw benches; one saw bench should be speeded to take the largest saw required, say a three-foot, which should run at 1,100 rev. per minute, and this should cut all the wood required 7 in. deep and up; then all other saw benches that cut up to 6 in. deep should be run at 1,700 rev. per minute, and increase the output by 65 per cent. as compared with what you see in most mills—a 3 ft. saw bench speeded anywhere from 900 rev. per minute to 1,150, and running year in and year out cutting 6 in. battens and under. The handling of material also calls for comment. Mills that are well laid out for economical handling, with saw bench between two planers or moulders, and feeding in opposite directions, so that when the board leaves the saw it is just opposite machine rollers, the saw backer could lay them close to one machine or the other; in many cases we find a heap of boards that are not required laid in his way, and prevents him from so doing. This necessitates extra labor to do what he could easily have done himself as the saw was working. It is such recurring daily items as these that want checking. You will see a firm buy a brand new, up-to-date machine, with only one set of the latest tools; with these they expect you to nearly double the output of the old one, but without the aid of anything in the shape of a grinder to grind the cutters properly and keep them in balance, or a little device to set them on when you stop. No, you must use what you have got; consequently you waste more time in trying to get them sharp without proper tools than it would take to sharpen, set and use the old-fashioned ones, so you eventually go back to the old way, and cast the up-to-date tools on one side, disgusted. Your new machine has now fallen in the old groove, with little better results than the old one, except a small annual saving in repairs. It is this short-sighted policy of the employer, and such daily recurring instances that I have tried to point out, that keep the sawmills and other wood-working shops in this country out-of-date. The reason for this, to my mind, is that there are no practical men in the trade, or not more than five per cent. I cannot understand how it is there are no practical men in this trade, as in others; take the engineering and shipbuilding trade, for instance, to which boys go as apprentices to learn the trade, both in theory and practice, with a view to becoming employers and have a business of their own; and certainly this is a proper beginning for any man who intends to carry on a successful business. The tendency of the present day from observation is in quite another direction. The changes I have seen in mills during the last ten years is to displace the practical man, and substitute the unpractical, with a little office experience, and have everything worked from the office, with the result that not a day passes without time being wasted waiting instructions, inspections, etc. No wonder you hear such works described as a necessary evil. No business can be made a paying concern on these lines, no matter what experience or how intelligent the office-trained man may be. He cannot compare with the practical, experienced man, who has done the work, or in any way check the amount of work that is done with what it is possible to do. He can never know the reason why any machine has not done a fair day's work, nor can he have any check on the time lost by any machine or its real cause, or when and where there could be a saving in time on any job, the best tools or machines to do it with. These items he would have to leave to his men to decide,

who will choose the best and easiest for themselves. The office system adopted is no doubt to check and keep down expenses in repairs, renewals, alterations, etc., as low as possible, which would not in any case amount to a very large sum per annum, without any check on the items which are daily occurring, which must mean a good round sum. My opinion and experience is that to save a few pounds on repairs, alterations, renewals, or extra outfit, which tend to efficiency and increased output, is economy of the very worst type, and truly the product of the unpractical and office-trained man. I know it is not in the power of all firms to keep installing new machinery and tying up its working capital. But this I do know, it is in the power of almost all firms to adopt a better system of working, and most of the smaller outfits, time and labor savers now on the market which would tend to increase the output and efficiency of their present machines, and repay the outlay many times over in the first year, if installed and applied by a practical man and used under his supervision, so that the fullest advantage could be taken of them.—J. G. H., in Timber and Wood-Working Machinery.

### Has Vast Heritage

Professor R. F. Stupart, Dominion Meterologist, of Toronto, addressed the Canadian Club on "Canada's Northlands," when he drew a picture of the vast territory of explored and unexplored lands within the confines of Canada, and, although it was 300 years, he said, since Canada was first settled, only the southern portions of the provinces were populated.

### Town of Four Thousand in Saskatchewan Bush

Saskatchewan has just created another big town, according to a visitor, W. H. Haverhill, which is not known to many people, and which has grown, it might almost be said, in a night. This is Big River, which is north of Prince Albert, and which is about 175 miles from Saskatoon.

It now has a population of over 4,000, which is pretty fair for a couple of weeks' work. All these men are engaged in lumbering, and Big River, according to the visitor, is at the present time, one of the busiest spots in the province.

The Big River Lumber Company alone have in their employ something like two thousand men who are out in the bush. The Woods-Kinney Company have another five hundred in their employ, and the smaller lumber companies and sub-contractors have well towards the remaining fifteen hundred necessary to complete the total. Towards the close of March, and the first of April, however, they will start off all over the country, and with the small trains running up to Big River, which is the end of the line, and the local equipment and office staff, it is likely that a mighty congestion will take place. As soon as the lumbering season is over three-quarters of the population will scatter over the four western provinces, while it is likely that the rest will stay to operate the mills.

### Labor Conditions Good in Brantford

A representative labor man expressed the opinion that there would be no strikes in Brantford and that labor conditions were exceptionally good.


# Looking for a Location?

# KINDERSLEY

The principal town in Western Saskatchewan, centre of an agricultural territory 6,000 square miles in extent, a divisional point of the C. N. R. midway between Saskatoon and Calgary, and the assured centre of future railroad development.

## Offers the Ideal Location
**for your**
## Woodworking Plant

If you want to start with a moderate investment and work into a big business with the development of a new country.

Write for a complete report, at once, to

**J. D. McLeod, Secretary**
**Board of Trade, KINDERSLEY, Sask.**

### Whetting as an Art

Whetting, as an art, does not depend altogether on the skill of the man using the whetstone. As the painter must be skilled in the selection of colors and have the colors to select from, as well as being skilled with his brush, so also must a good mechanic who takes up the art of whetting consider the matter of the whetstones themselves. But whetters must not lose sight of the purpose of their art.

Proper whetting serves more good purposes than you may give it credit for. Here, for example, is a point you may have overlooked.

The longer you can keep a set of planer knives on a cutter head doing good work before regrinding the smoother will be their work.

In other words, in doing their work those that extend a little more than the others are worn more, and in the process of whetting them down one trues them up better than it is practical to true them by gauges in the original setting.

This should not be taken as an excuse for continuing the knives on the cutter head after they need grinding, running them blunt, so that they pull heavily, or wasting time taking off metal tediously with the whetstone that should be taken off with the grinder.

It should, however, be taken as a reason for grinding, whenever practical, with a view to long service on the cutter head, and the maximum amount of whetting before the knives are to be removed. That is, it is an argument in favor of grinding the bevel back a little more than one might otherwise, and also in favor of hollowing it out so as to facilitate whetting to an edge from time to time as the knife becomes dull from service.

This idea is perhaps most valuable in connection with working pine, cotton wood, and other soft woods. These permit of comparatively slender grinding, and one can humor the whetting in this way on soft woods more than is practical in working such hardwoods as oak, maple, birch and beech.

In connection with this point of advantage of keeping the knives on the cutter head and continued whetting before regrinding, one should bear in mind that the better the whetstone the less time is wasted, and the more satisfaction can be had from it generally.

It is doubtful if the average man realizes the chances for discrimination and selection among the whetstone offerings of to-day. The fact of the matter is there is just as much progress made in whetstones as in grinding wheels, and there is not much excuse in view of this for a man to use a stone that does not cut rapidly and smoothly.

One should have in these days quite a varied assortment of whetstones, and they can be had. Some in natural stones and many in the artificial stones that are made on a scientific basis, as to grit and composition.

The makers of artificial whetstones have studied the subject as carefully as they have studied that of grinding and other abrasive work, so that they can furnish you stones for all manner of purposes. Some that are of coarse grit and rapid cutting on one side and fine and hard on the other for smoothing off. One should have from half a dozen to a dozen different kinds of whetstones, some for rapid cutting, and others for slicking up and taking the wire edge off.

It is conceded by those who are in a position to know that a soft rapid cutting stone is not good for taking off the wire edge and putting a keen point on a knife. It takes the hard slip or close grained stone for this. At the same time the slip or close grained stone is a time waster, when it comes to whetting down a dull knife.

Investigate the whetstone business. Get an assortment. The more the merrier, and the more you learn about them, the more easily you will be able to do whetting to your satisfaction.

Then, when you get them, keep them in good working shape. There are a number of different methods to care for them. Some keep them immersed in a can of coal oil, others prefer different methods. Take your own choice of methods, or better yet, experiment a little with the different methods of keeping the stones in order as well as with the different stones. By and by you will not only learn that whetting is something of an art, but you will get some pleasure out of a job which heretofore has been too much of a nuisance to the average planer man.

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### Making Tobacco Boxes of Cypress

Manufacturers of plug tobacco have been for many years large consumers of wood. Owing to the tendency of tobacco to absorb taste and stain from wood when brought in contact with it in the box, much difficulty has often been met in procuring suitable box material. Sycamore has always been considered one of the best woods for that purpose, but it has become scarce and the search for substitutes is active.

The suitability of cypress for tobacco boxes has been made the subject of tests for some months by the U. S. Department of Agriculture in co-operation with packers of plug tobacco and manufacturers of cypress lumber. Results have been obtained which are now announced as highly satisfactory.

The tests which have been concluded were brought about through the desire of plug tobacco manufacturers to procure satisfactory box material, and on the part of Southern cypress mills to dispose of large quantities of short lumber which accumulates at their plants because there is small demand for it. In size and grade it is such lumber as tobacco box makers use.

The mill men furnished the cypress lumber for the tests, and the tobacco manufacturers made the boxes, filled them with tobacco and subjected it to conditions that would bring out any unsuitable properties the wood might have.

A summary of results shows that plug tobacco kept four months in cypress boxes absorbed no taste from the wood. The box itself is not considered quite as handsome as sycamore, but it is lighter in weight, an item worth considering when large shipments are made. The chief economy, however, consists in finding plentiful material for boxes which will meet the needs of the packers, and at the same time providing a market for a class of lumber which heretofore has been in small demand.

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While waiting for something to turn up it were better to get the plow ready for turning something up.

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### Thorold to Boom

The action of the voters in endorsing a fixed assessment to a company of local capitalists for a large pulp and wood mill on lock 23 of the new Welland Canal, is expected to lead to a great boom for the mountain town. The new company is capitalized at $1,000,000 and will erect a large plant.

### Train An Understudy

It is claimed by broad-minded business men that every manager of a store, factory or other institution should have an understudy, some man so carefully and thoroughly trained as an assistant that at any time he could take the manager's place and the work would go without halt or hindrance. This is called rational preparation for emergencies, because in the course of events every man gets sick or something happens to interfere with his being present at work. Institutions of any magnitude are important enough that they should be kept going and never have to stop because of the non-arrival on the scene of some one man.

The interesting question in the industrial lines is just how far this subject of the understudy should be followed, or rather the practice in the way of preparation for emergencies. Evidently, if the manager needs an understudy, there should also be some one to take the place of the superintendent in case of illness or his being incapacitated from any cause. The same is true of department foremen, also of certain machine men. Take the man at the moulder, for example. He may be sick, may take his departure, or something happen to him right in the midst of an important rush, and if there is no one to take his place it means the loss of time and money. Indeed, it is doubtful if there is a machine about any factory but what there should be more than one man qualified to operate it.

Some operators may resent this, but from a rational business standpoint the only sensible way to view the matter is that the equipment and training of employees should be such that in case any man is out for a day or more, the work can go right ahead without a hitch. Usually there is some other man, at some other machine, who can be moved up, and by shifting and changing about, the work can be continued right along in the average mill or factory. However, there are some instances where a skilled man at a machine may cause serious trouble for a while by sudden disappearance or by being sick. Wherever this condition exists the wise thing is to have an understudy. Get some other man trained, not with a view to replacing the original man or making him feel restless in the holding of his job, but for the sake of emergencies, to insure the operation of the plant and the carrying on of the work without interference in case of sickness or absence from any other cause.

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Is a blow from a kicking cow a real milk punch?

Marriage vows are too often followed by marriage rows.

Everybody has to hustle; even the egg is compelled to scramble, oftentimes.

Those who rise early in the morning are the more likely to rise above their troubles.

Men are like hens, the harder they have to scratch for a living the more useful they become.


## FOR SALE

One Waterous engine, in first class condition, about 75 to 90 h.p. Apply, **The Delaney & Pettit Co., Ltd., 133 Jefferson Ave., Toronto.**

# WATERLOO

**"The Town of Prosperity"**

A town of 5000 inhabitants without a

## Planing Mill and Sash and Door Factory

WATERLOO is right in the centre of the most prosperous district of Ontario, surrounded by evergrowing factories which constantly demand more homes in which to house their employes. Building is going on, on almost every vacant plot. All the materials for these have to come now from Berlin. The man in town would get the work. If you are in a position to establish a plant, write for particulars and building statistics of the community. We can satisfy you that there is a wonderful opportunity for investment here. Address—

**SECRETARY OF BOARD OF TRADE**
**WATERLOO, ONT.**

## Why Add Waste to Waste

By throwing aside your broken Castings, when by sending them to me you can have them **brazed and made as strong at joint as other parts.**

Breaks in Gears, Pulleys or Circle Castings are sometimes difficult to braze, owing to uneven **cooling-off.** Before shipping send sketch with dotted lines showing break and I will advise at once. Work sent by express **returned same day as received and fully guaranteed.**

## W. H. DUNNE

**1492 Queen St. West, - - Toronto**

**Phone Park 420**

LEADING VENEER OF UNITED STATES
MANUFACTURERS
RECOMMENDED BY CANADIAN WOODWORKER

National Veneer & Lumber Co.

Manufacturers of

**Quartered Oak Veneer**

West Michigan Street and Belt Railroad,

INDIANAPOLIS, IND.

**Cincinnati Veneer Company**

Sawed and Sliced Quartered Oak Veneers
Rotary Cut.
Poplar, Gum, Maple Cross-banding.
Oak and Walnut Faces and Backs.
Veneer Sawed Thin Lumber.
Sliced Poplar 1/8 to 5/16 in.

CINCINNATI, OHIO, U. S. A.

**Ohio Veneer Company**

Manufacturers of
**Foreign and Domestic Hardwood Lumber and Veneers**

Importers of
Mahogany and Foreign Woods

Office and Mills:
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CINCINNATI, OHIO

We Have Large Quantities
**Plain Veneers, Ready to Ship**

OAK
BIRCH
POPLAR
GUM
STANDARD THICKNESSES

**Walter Clark Veneer Co.**
Grand Rapids - Mich.

Did you ever Stop and Figure Out the business there is in Canada for the Veneer Manufacturer ?

There are in Canada approximately 985 Furniture Manufacturers and only two Canadian Veneer Makers. The business has to go to the United States. Do you get your share ?

The Canadian Woodworker has 1100 copies of its whole circulation going into the furniture factories of Canada. Our rates are reasonable. May we give you further information?

# From Coast to Coast

### The Ham and Nott Co. of Brantford

This company have never, during the whole of their industrial career, been busier than they are this spring. Everything looks most promising for a continuance of the good times, too. At the present time about 250 men are employed, and while no large number will be taken on in the immediate future, a few new employees will be added from time to time.

### Shultz Bros. Doing Big Business

Of all the lines of manufacture represented in the city, that of building seems to stand out as the one most conspicuous for its prospects during this year. Everywhere can be seen evidences of unparalleled growth and development. Whole blocks of houses are being contracted for. "We are going to supply one man with the material for a row of 14 houses," said Mr. W. C. Schultz, and that is only one example of what is going on here in the city. Mr. W. C. Schultz, in talking about the year's prospect, said: "Last year was a good year, but this year is better; last year we had practically no large contracts, this year will find us with over $100,000 in contracts when the spring opens up. As fas as possible we intend to confine our work to Brantford, where the building is unprecedented." Eighty men are employed continuously in the Schultz planing mill, but over 300 are kept busy during the rush season.

### Mickle, Dyment Co.

The Mickle, Dyment Company find prospects for the coming season very bright. "Already there has been a considerable increase over last year's business for the same time," said the manager, O. W. Rhynas.

The company intends to considerably enlarge its warehouse, and the work will be commenced almost immediately.

At the present time about 60 men are employed, and this number will be added to largely during the summer months, as that is the busy time. The enlargement of the warehouse will also necessitate the taking on of several new permanent hands.

### The Brantford Motor Truck Co.

Mr. Cumback of the Brantford Motor Truck Co., states that he expected a very busy season. As is well known the company is in its first year and the parts of the motor truck are being assembled in the factory on Spring street, formerly used for soap manufacture. "We expect a big addition down here in the future," said Mr. Cumback, who is very optimistic as to the success of the company. It might be stated that the new motor truck being turned out in this city created a very favorable impression at the recent Toronto show.

### A Wonderful Piano Record

The old firm of Heintzman & Co., Limited, have just rounded out another business year, and the figures presented at the annual meeting showed that during the year 1911 there was manufactured in their factory at West Toronto three thousand and ten of their famous pianos. The new year has opened out with so great a demand that the factory is to-day working at its fullest strength.

### New Planing Mill and Dry Kiln for Calgary, Alta.

Westington Company, Pittsburg, have announced that they will build for the Canadian Pacific Railway Company at Calgary, Alta., additional railway shops, at a cost of $2,750,000. Construction work will start as soon as materials ordered can be placed. It is intended to have the shops in operation Dec. 1st next.

The contract includes the design and construction of locomotive, machine, boiler, blacksmith, pattern, coach, freight car repair and paint shops, and foundry, planing mill, power-house, dry-kiln, scrap docks, material bins, storeroom and office buildings. In general the construction will be concrete, steel, brick or hollow tile.

### Over 5,000 Houses

According to annual classified report of City Architect McCallum of Toronto, 5,437 dwelling houses were erected at a cost of $12,400,310.

In addition to these a large number of houses were improved and enlarged at considerable expense.

### Expect Building Boom

Indications are that 1912 will be a banner building year in Sault Ste. Marie, Ont., and that the amounts spent will be even greater than last year, when the value of permits granted reached the sum of $2,400,000. Already City Engineer Grant has issued permits for the erection of 73 residences to be commenced as soon as the snow disappears.

### Ingersoll's New Industry

A by-law granting a loan of $10,000 to the Ingersoll Motor Company, Limited, will be submitted to the ratepayers of Ingersoll. The company will erect two buildings, one 150 feet by 50 feet, the other 100 by 50 feet, and will commence operations on September 1, 1912. An average of eighteen employees will be engaged for the first year, and an average of twenty-five to thirty the second. The company will commence operations with a building and equipment worth at least $16,000, and at the end of the first year will have a plant worth over $20,000.

### Small Lumber Cut in Ottawa Valley

Reports from Orillia, Ont., state that while the 1911 lumber cut in the Ottawa Valley was very close to 450,000,000 feet, it was nearly 100,000,000 feet short of the cut in 1910. Low water, a shortage of men and labor troubles are said to have contributed to this falling off. It is reported that the outlook for 1912 is more promising than it seemed earlier in the season, though the cut is not expected to exceed the 1911 production by any material amount.

### To Encourage Building

A company of one hundred citizens who will subscribe $1,000 each, is being organized in London, Ont. The Board of Trade and the Manufacturers' Committee of the City Council are behind the move. A Com-

missioner of Industries is to be appointed by the city, and every proposition he submits will be investigated. If pronounced sound, the citizens' guarantee company will arrange loans from the banks. In this way it is hoped that a stimulus will be given to industrial development.

### Have Enlarged Their Plant

Delany & Pettit, glue and sandpaper manufacturers, of Toronto, have just completed a large addition to their plant. This firm are doing a rushing business and expect a good year's trade.

### Factory for Goderich

The latest business venture in Goderich is that of the Huron Gasoline Engine and Machinery Company, which will open shortly in the premises lately occupied by the Bon Ton livery on East street. The company aims to undertake the repair and erection of all classes of gasoline engines and machinery work, including automobiles, motor boats, power plants and farm machinery. The manager is Arthur M. Glover, of Toronto, who has had charge of the shop and technical work in the Y. M. C. A. auto school, and has held positions of trust with large English and Canadian firms.

### May Install New Machinery

The Brantford Carriage Company is reported at present unusually busy with prospects of considerable development in the future. New machinery and equipment, it is understood, will be added this year, while at present 150 employees are at work. This number is regarded as exceedingly satisfactory.

### Brantford Emery Wheel Company Busy

Manager Howard, of the Brantford Emery Wheel Company, states that the number of hands employed was normal and conditions were steady. He announced a twenty-five per cent. increase for the year in the output.

### Expect a Record Year

Mr. Paul Kreisman, managing director Canada Glue Company, of Brantford, Ont., said: "We expect the busiest year on record and are selling more of our product than we can manufacture. At present we have somewhat over 75 hands with the prospects of steady employment of that number up to ninety during the year."

### Big Car Orders

Orders for over 4,000 cars of various classes have recently been placed by the Grand Trunk Railway to augment its present equipment; these include 44 passenger coaches, 23 baggage cars, apart from which 948 cars of all kinds have been received and put into service during the past quarter. The Grand Trunk has also ordered 1,000 freight cars from the Canadian Car and Foundry Company, 250 refrigerator cars in Chicago and 250 automobile cars in Detroit, delivery of these last to commence this April and to be completed at the rate of 25 cars per day.

### Cut Enormous Pine

Mr. Samuel Howland, a prosperous farmer of Springfield, York County, New Brunswick, cut a pine tree on his farm February 13th which measured one hundred feet in length. The first log being fourteen feet long and forty-seven inches at the top. Ten logs were got out of the tree, none of them being under twelve feet in length and ten inches at the top. Besides these logs he also got four loads of wood from the same tree. Mr. Howland says that he is positive that three spans of horses could not have hauled the tree.

### Industrial Accidents

According to the record of industrial accidents kept by the Department of Labor, 61 persons were killed and 178 injured during February, 1912. This record compares very favorably with that of January, when 86 workmen were killed and 214 injured. Compared with February, 1911, the record is still more favorable, as 93 were killed and 197 injured in that month. The worst disaster of the past month was the premature explosion of dynamite on construction work near Fort Frances, Ont., on the line of the Canadian Northern Railway, by which 13 construction hands were killed and six others seriously injured.

### Lost Two Fingers; Sues for Damages

George Laxton is suing the Dodge Manufacturing Company before Mr. Justice Britton in the civil assizes court for unstated damages.

The plaintiff alleges that through the machinery of the defendant company being unprotected he lost two fingers of his left hand last November. The defendants claim the contrary and the case is proceeding.

### Fire in Factory

What might have resulted in a serious fire was successfully extinguished at the Russell Motor Car Works on Weston road, West Toronto. Some gasoline in the motorcycle testing room became ignited, causing a sheet of fflame to fill one end of the building. The workmen in the room turned on the sprinkler system, flooding the walls and floors of the department. The only damage done was caused by the water.

### Hand Badly Lacerated

An accident occurred at the Wm .Hamilton Manufacturing Company plant, Peterboro, Ont., whereby Fred Green, a young married man, had his hand badly lacerated. It appears that Green was working at a planing machine, and in some way his hand was caught in the machinery.

Ten States last year passed laws providing compensation for men injured while at work.

### Crushed in Shafting

George Jordan, an employee of the Massey-Harris Company, of Brantford, Ont., was fatally injured while doing a special job in the assembling room. His blouse caught in a pulley and wound him up into the shaft of the machine, with the result that his skull was badly crushed. He was removed to the hospital in the ambulance, where he died a few hours later.

### Fire in Basket Factory

Dauphin's basket factory, of Ridgetown, Ont., took fire and the firemen were soon on the scene. However, the blaze was extinguished without their assistance. A few years ago there were three or four bas-

ket factories here, but timber has become scarce and Mr. Dauphin is the only one continuing the business. There is every prospect that the price of baskets will be considerably increased.

### Falling Tree Kills Boy

The twelve-year-old son of Mr. J. R. Jaggard, of Port Sydney, was killed by a falling tree. The boy had gone to the bush with his father to fell trees, one of which split from the stump, striking him on the head.

### Old Carriagemaker Dead

John McConnell, who was for years noted as one of the best carriagemakers in Ontario, has just passed away, aged seventy-three years.

The late John McConnell served his apprenticeship as a carriage builder with Mr. John Campbell, of London, who was noted for his fine products, and then came to Guelph about forty-seven years ago, conducting a carriage factory until last year.

### Box Lumber in Canada

The reported consumption of lumber for boxes and shooks in Canada during 1910 was over one hundred and fifty-eight million feet, valued at two million two hundred and seventy-three thousand dollars. These statistics have been compiled by the Forestry Branch of the Department of the Interior from reports received from one hundred and two box factories, over one-half of which are in Quebec. Seventy million feet of lumber or forty-five per cent. of the total was used in Quebec. Ontario used sixty million feet or thirty-eight per cent. of the total and the remainder was used in the provinces of New Brunswick, British Columbia, Manitoba and Nova Scotia. Pine, the chief species used in Ontario, formed forty-five per cent. of the total box lumber and cost only $13.93 per thousand. This comparatively low price for pine, indicates that with this more than any other species, mill waste and cull lumber is being used in the manufacture of boxes. Spruce in 1910 was used in every province in which boxes were made and formed forty-one per cent. of the total. The cost was $13.83 per thousand or 28c. more than the average mill run price, so that manufacturers using spruce demand the finest quality. The remaining fourteen per cent. of the total was comprised of fourteen other woods, of which hemlock, basswood and balsam were the chief. The most expensive box wood used was a million and a half feet of Douglas fir at $23 per thousand in British Columbia. Balsam fir used in the three eastern provinces was the cheapest box wood reported in 1910 at $8.94 per thousand. It is a wood light in color, tasteless, fairly strong and its use in the manufacture of boxes should be encouraged.

### Telephone Adds Another Terror to Life

The manager of a large manufacturing plant in Paterson, N.J., recently had a novel experience which impressed him as a striking illustration of the speed with which sound travels over a telephone wire as compared with the speed with which it travels through the atmosphere. He was standing at the telephone in his residence, which is about two miles from his factory, speaking with the superintendent of the works, when the whistle of the factory blew for one o'clock. The sound came to him very distinctly over the wire, lasting about five seconds, then ceased, and a few seconds later the same sound of the whistle blowing came to him through an open window near which he was standing, this time coming via the slower route, the sound waves of the atmosphere. He thus actually heard the same sound twice, and has not yet recovered from the novelty of the experience. —Telephone Review.

### Increase of Capital

The capital of The Coast Lumber Company, Limited, of Regina, has been increased from $500,000 to $600,000.

The capital stock of the Crown Paving and Construction Company, Limited, of Edmonton, has been increased from $30,000 to $250,000.

The Northern Planing Mills, Limited, is incorporated with head office at Saskatoon, and capital of $50,000.

The Jonah-Prat Lumber Company, Limited, is incorporated with head office at Calgary, and capital of $10,000.

The Central Lumber Company, Limited, is incorporated with head office at Lethbridge, and capital of $50,000.

### The King of the Forest

During the first week in January the "King of the Forest" pine was felled near Bovill, Idaho. The tree was 428 years old, and is the largest known white pine in the world, scaling 29,800 feet. It was 207 feet in height, 26 feet around the butt, and more than eight feet in diameter. The first log cut from the butt end was 32 feet long, containing 7,200 feet, and is said to be the largest white pine log ever sawed.

### Have Appointed a Montreal Agent

The Ruggles-Coles Engineering Co., 50 Church street, New York City, and McCormick Building, Chicago, have appointed J. L. Danziger, 38 St. Sulpice street, Montreal, as agent for their stationary dryers for mining and manufactoring plants.

### Building Permits

During the first nine days of March the City Architect of Toronto issued permits for buildings to the value of $383,200.

### Found Log 350 Feet Down

A walnut log as sound as if it had been but recently cut, has been found at a depth of 350 feet in the ground on a farm in McPherson County, Kan. The tree, more than a foot in diameter, is supposed to have grown on the banks of a big lake that once covered Central Kansas.

Many a true word is spoken by mistake.

Bad luck is often but another name for poor management.

# BUYER'S DIRECTORY

**AUTOMATIC DOVETAIL GLUE JOINTER**
Canadian Linderman Machine Co., Ltd., Woodstock, Ont.

**BABBITT METALS.**
Shurly Dietrich Co., Ltd., Galt, Ont.
Fay & Egan Co., Cincinnati, O.
Canada Metal Co., Ltd., Toronto.

**BALUSTER LATHES.**
C. Mattison Machine Works, Beliot, Wis.
Ober Mfg. Co., Chagrin Falls, O.
Baxter D. Whitney & Son, Winchendon, Mass.

**BAND SAW FILING MACHINERY.**
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
Shurly Dietrich Co., Ltd., Galt, Ont.
Fay & Egan Co., Cincinnati, Ohio.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

**BAND SAWS.**
Canada Machinery Corporation, Ltd., Galt, Ont.
Shurly Dietrich Co., Ltd., Galt, Ont.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
R. H. Smith Co., Ltd., St. Catharines, Ont.

**BAND SAW MACHINERY.**
Canada Machinery Corporation, Ltd., Galt, Ont.
Mussens, Ltd., Montreal.
Canada Machinery Agency, Montreal.
Berlin Machine Works, Ltd., Hamilton, Ont.
Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

**BAND SAW MILLS.**
Berlin Machine Works, Ltd., Hamilton. Ont.
Canada Machinery Agency, Monteral.
Mussens, Ltd., Montreal.
Fay & Egan Co., Cincinnati, O.

**BAND SAW STRETCHERS.**
Fay & Egan Co., Cincinnati, O.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

**BENDING MACHINES.**
Mussens, Ltd., Montreal.
Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.

**BELTING.**
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Sadler & Haworth, Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
H. W. Petrie, Ltd., Toronto.

**BELTS (Endless).**
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Sadler & Haworth, Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt.
H. W. Petrie, Ltd., Toronto.

**BELT CEMENT.**
Sadler & Haworth, Montreal.

**BELT FASTENERS.**
Sadler & Haworth, Montreal.

**BELT DRESSING.**
Sadler & Haworth, Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt.

**BLOWERS.**
Mussens, Ltd., Montreal.
Sheldons, Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

**BLOW PIPING.**
Sheldons, Ltd., Galt, Ont.

**BOILERS.**
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

**BORING MACHINES.**
Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
J. M. Nash, Milwaukee, Wis.
Valley City Machine Works, Grand Rapids, Mich.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

**BOX MAKERS' MACHINERY.**
Canada Machinery Corporation, Ltd., Galt, Ont.
Canadian Linderman Co., Ltd.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Baxter D. Whitney & Son, Winchendon, Mass.

**BROKEN CASTINGS BRAZED — MACHINIST AND DIE MAKER.**
W. H. Dunn, 1892 Queen St. West, Toronto

**CABINET PLANERS.**
Canada Machinery Corporation, Ltd., Galt, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Valley City Machine Works, Grand Rapids Mich.
Baxter D. Whitney & Son, Winchendon, Mass.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

**CARS (transfer).**
Sheldons, Ltd., Galt, Ont.

**CARVING MACHINES.**
Canada Machinery Corporation, Ltd., Galt, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler Ont.
Valley City Machien Works, Grand Rapids Mich.

**CHISELS.**
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.

**CIRCULAR SAW MILLS.**
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

**CHAINS (Silent).**
Jones & Glassco, Montreal.

**CLAMPS (Chain, Carpenter, Cabinet, Pattern Makers, Bench, Mitre, Piling, Mounted and Rotary Wheel).**
Black Bros. Machinery Co., Mindota, Ill.
J. A. Fay & Egan Co., Cincinnati, O.

**CLAMPS (Saw).**
Shurly Dietrich Co., Ltd., Galt, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

**CLUTCHES.**
J. A. Fay & Egan Co., Cincinnati, O.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

**COLUMN CLAMPS.**
Black Bros. Machinery Co., Mendota, Ill.

**COLUMN MACHINERY.**
J. A. Fay & Egan Co., Cincinnati, O.
C. Mattison Machine Works, Beloit, Wis.

**CORE BOX MACHINES.**
J. A. Fay & Egan Co., Cincinnati, O.
E. & B. Holmes Machinery Co., Buffalo, N.Y.

**CUT-OFF SAWS.**
Canada Machinery Corporation, Ltd., Galt, Ont.
Shurly Dietrich Co., Ltd., Galt, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Simonds Canada Saw Co., Montreal.
R. H. Smith C., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

**CUTTER HEADS.**
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Samuel J. Shimer & Sons, Mitton, Pa.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

**DADO HEADS.**
C. Mattison Machine Works, Beloit, Wis.

**DIEMAKERS & MACHINISTS**
W. H. Dunne, Toronto.

**DISK GRINDERS.**
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.

**DOGS (Saw Mill).**
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.

**DOVETAILING MACHINES.**
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Canadian Linderman Machine Co. Ltd., Woodstock, Ont.
J. A. Fay & Egan Co., Cincinnati, O.

**DOWEL MACHINES.**
Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Valley City Machine Works, Grand Rapids, Mich.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

**DRILLS (Automatic Hand).**
North Bros. Mfg. Co., Philadelphia, Pa.

**DRILLS (Reciprocating).**
North Bros. Mfg. Co., Philadelphia, Pa.

**DRILLS (Breast).**
North Bros. Mfg. Co., Philadelphia, Pa.

**DRYING MACHINERY.**
Canada Machinery Agency, Montreal.
Sheldons, Ltd., Galt, Ont.

**DRY KILNS.**
Canada Machinery Agency, Montreal.
Sheldons, Ltd., Galt, Ont.
Morton Dry Kiln Company, Chicago, Ill.

**DUST COLLECTORS.**
Canada Machinery Agency, Montreal.
Sheldons, Ltd., Galt, Ont.

**DUST SEPARATORS.**
Canada Machinery Agency, Montreal.
Sheldons, Ltd., Galt, Ont.

**DYNAMOS.**
Canada Machinery Agency, Montreal.

**EDGERS (Gang).**
Berlin Machinery Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
Simonds Canada Saw Co., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Fisher, Sander Co., Berlin, Ont.
E. & B. Holmes Machinery Co., Buffalo. N.Y.
H. W. Petrie. Ltd., Toronto.

**EDGERS (Single Saw).**
Berlin Machine Works, Ltd., Hamilton. Ont.
Canada Machinery Agency, Montreal.
Simonds Canada Saw Co., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.

**END MATCHING MACHINE.**
Berlin Machine Works, Ltd., Hamilton.
Canada Machinery Corporation, Ltd., Galt, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.

Mussens, Ltd., Montreal.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

ENGINES (Steam).
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

EXHAUST FANS.
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
Sheldons, Ltd., Galt, Ont.

FLOORING MACHINES.
Berlin Machine Works, Ltd., Hamilton.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler.
Mussens, Ltd., Montreal.
Samuel J. Shimer & Sons, Milton, Pa.
Canada Machinery Corporation, Ltd., Galt, Ont.
Baxter D. Whitney & Son, Winchendon, Mass.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

FLINT.
Wausau Quartz Co., Wausau.

FLUTING HEADS.
J. A. Fay & Egan Co. ,Cincinatti, O.

GAINING MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinatti, O.
C. Mattison Machine Works, Beliot, Wis.
Mussens, Ltd., Montreal.
Canada Machinery Corporation, Ltd., Galt, Ont.
H. W. Petrie Co., Ltd., Toronto.

GAS ENGINES.
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
H. W. Petrie, Ltd., Toronto.

GAUGES (Saw).
Shurly Dietrich Co., Ltd., Galt, Ont.
Simonds Canada Saw Co., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

GEAR HOBBING MACHINE.
Reynolds Machine Co., Moline, Ill.

GLUE CLAMPS.
Black Bros. Machinery Co., Mendota, Ill
H. W. Petrie, Ltd., Toronto.

GLUE HEATERS.
J. A. Fay & Egan Co., Cincinnati, O.

GLUE JOINTERS
Canada Machinery Corporation, Ltd., Galt, Ont.
Canadian Linderman Co., Ltd.

GLUE SPREADERS.
J. A. Fay & Egan Co., Cincinnati, O.

GRINDERS (Cutter).
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Falls Machine Co., Sheboygan Falls, Wis.

GRINDERS (Knife, etc.).
E. C. Atkins & Co., Hamilton, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
T. A. J. Burton Saw Co., Ltd., Vancouver, B.C.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

GRINDERS (Tool).
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Valley City Machine Works, Grand Rapids, Mich.

GROOVING HEADS.
E. C. Atkins & Co., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
C. Mattison Machine Works, Beloit, Wis.
Samuel J. Shimer & Sons, Milton, Pa.
Canada Machinery Corporation, Ltd., Galt, Ont.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

HAND PROTECTORS.
J. A. Fay & Egan Co., Cincinnati, O.
Jones Safety Device Co., Hamilton, Ont.

HAND SCREWS.
Black Bros. Machinery Co., Mendota, Ill.
J. A. Fay & Egan Co., Cincinnati, O.

HEATING APPARATUS.
Sheldons, Ltd., Galt, Ont.

HANDLE AND SPOKE MACHINERY.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
J. M. Nash, Milwaukee, Wis.
Ober Mfg. Co., Cragrin Falls, O.
Baxter D. Whitney & Son, Winchendon, Mass.

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J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.

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Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
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Canada Machinery Corporation, Ltd., Galt, Ont.
Canadian Linderman Co., Ltd.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
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Canada Machinery Corporation, Ltd., Galt, Ont.
E. C. Atkins & Co., Hamilton.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.
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The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
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Sadler & Haworth, Montreal.

LAST MACHINERY.
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Canada Machinery Corporation, Ltd., Galt, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Valley City Machine Works, Grand Rapids Mich.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

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Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Haspeler, Ont.
C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Plessisville Foundry, Plessisville, Que.
Valley City Machine Works, Grand Rapids, Mich.
Baxter D. Whitney & Son, Winchendon, Mass.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

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J. A. Fay & Egan Co., Cincinatti, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

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The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

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Elgie & Jarvis, Toronto.

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Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

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Shurly Dietrich Co., Ltd., Galt, Ont.
E. C. Atkins & Co., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Canada Machinery Corporation, Ltd., Galt, Ont.
Simonds Canada Saw Co., Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
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J. A. Fay & Egan Co., Cincinatti, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
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Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
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Plessisville Foundry, Plessisville, Que.
Baxter D. Whitney & Son, Winchendon Mass.
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Plessisville Foundry, Plessisville, Que.
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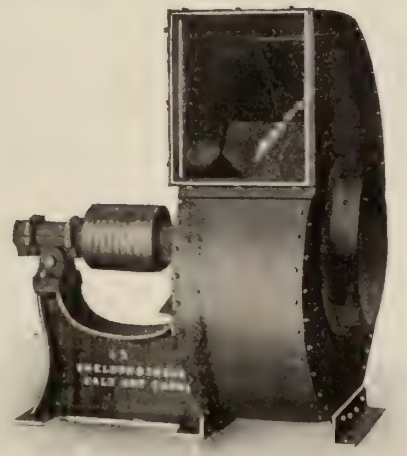

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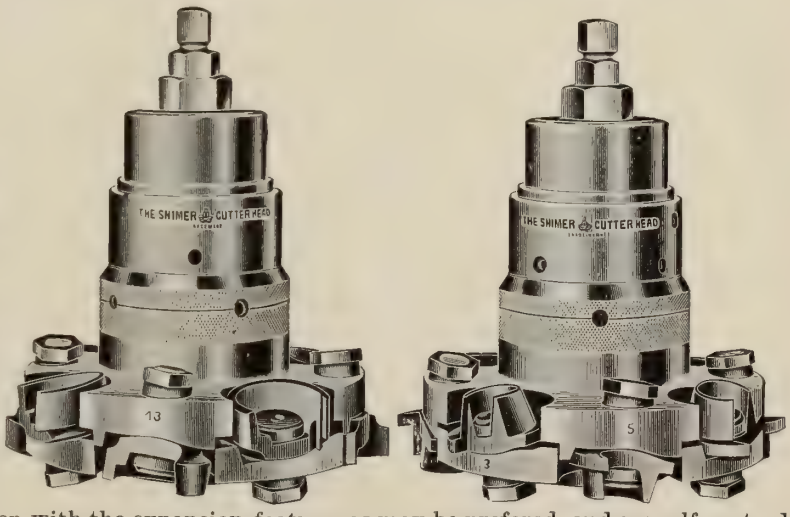


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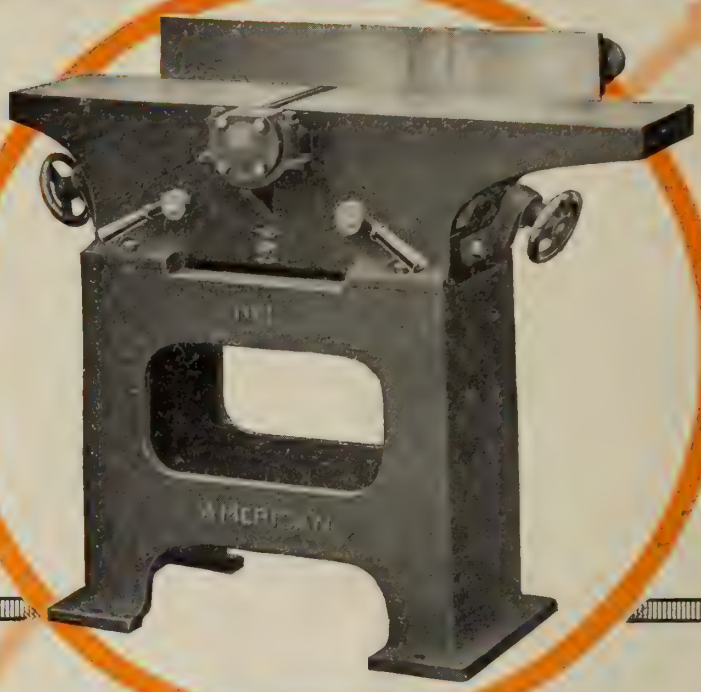

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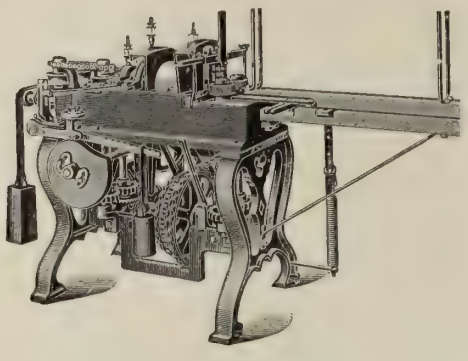

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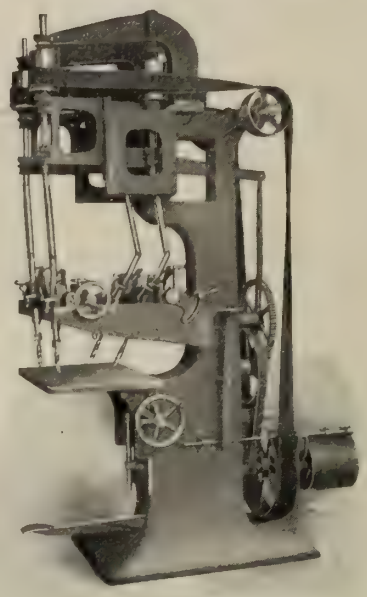

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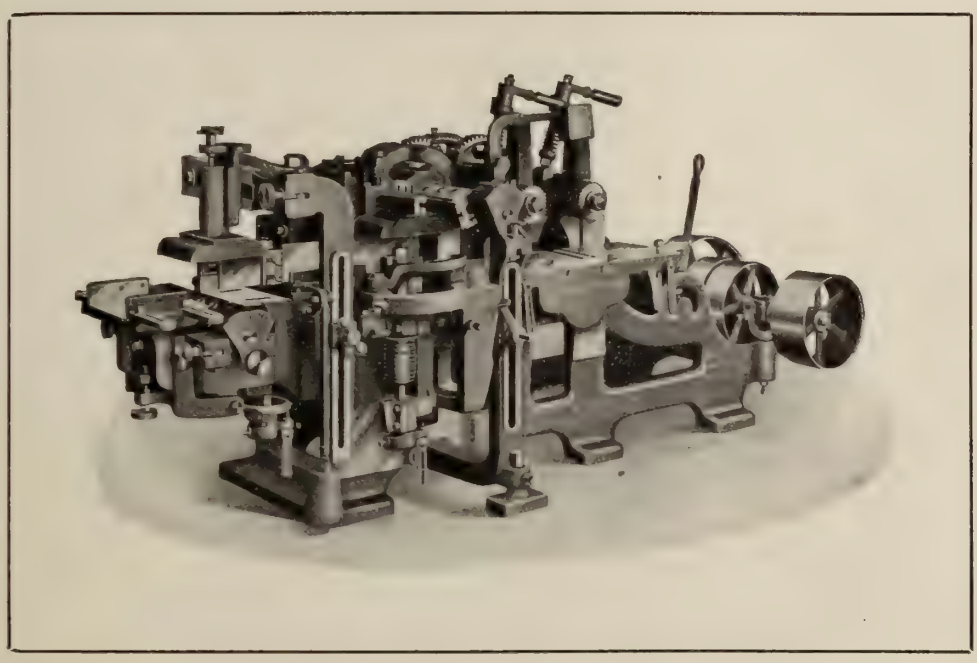
**The M. Brennen & Sons Manufacturing Co., Ltd.**

HAMILTON, ONT.



# The Built in Quality of Fay-Egan Molders

## —What it means—and its Value to You—

—it means when you buy a FAY-EGAN Molder you are buying the result of eighty-two years' experience in the manufacture of Woodworking Machinery.

—and in these eighty-two years we have learned not only what must be put in but also many things that must be left out to produce a Molder of maximum efficiency.

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—FAY-EGAN Molders are not made with a lot of features designed primarily as "talking points," but are built as a unit to produce quality first, then quantity, and last, to stand up to the hardest service for many years.

—the value of this "built in quality" is being demonstrated daily in hundreds of plants ; we'll be glad to refer you to one right close at hand

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*Manufacturers of Woodworking Machinery—THE "LIGHTNING" LINE*

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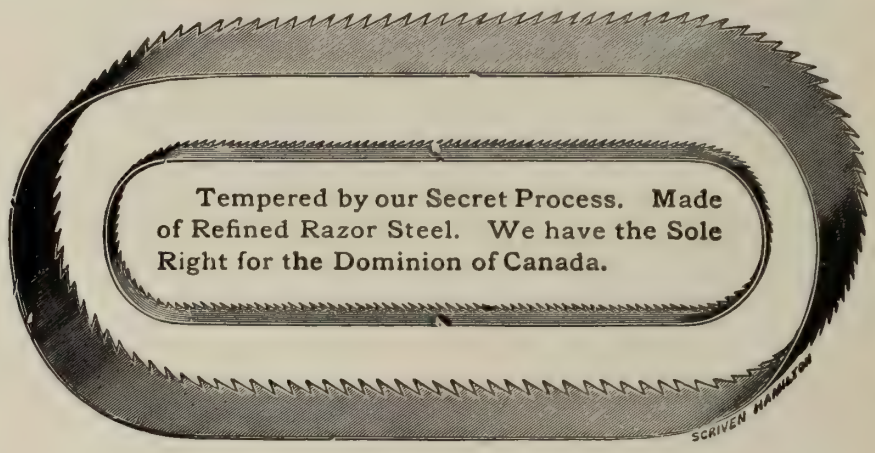


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**Canadian Woodworker**

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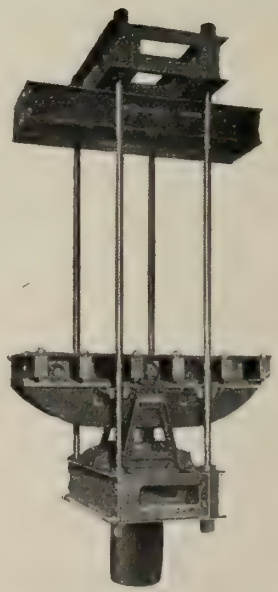

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We want a list of men who are not just exactly satisfied with their present position and would like a change. We would also like to hear from the employers who desire any class of mechanic.

Just at the present time we want to get hold of a man who has a knowledge of men, material and machinery and is capable of acting as foreman in a shop in a live Ontario town.

The subscriber who wants this man will pay a good salary to the right man but he must have him right away. Write the Editor immediately if you are interested.


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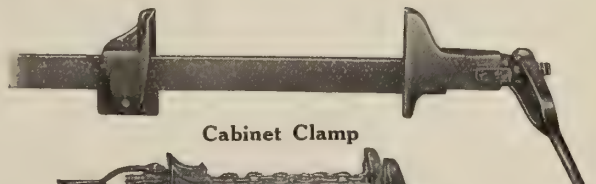

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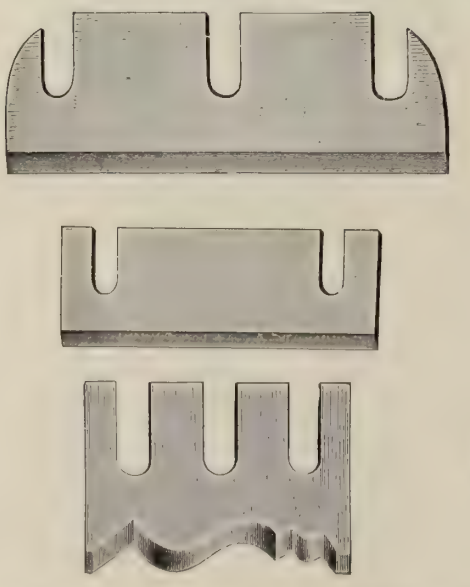

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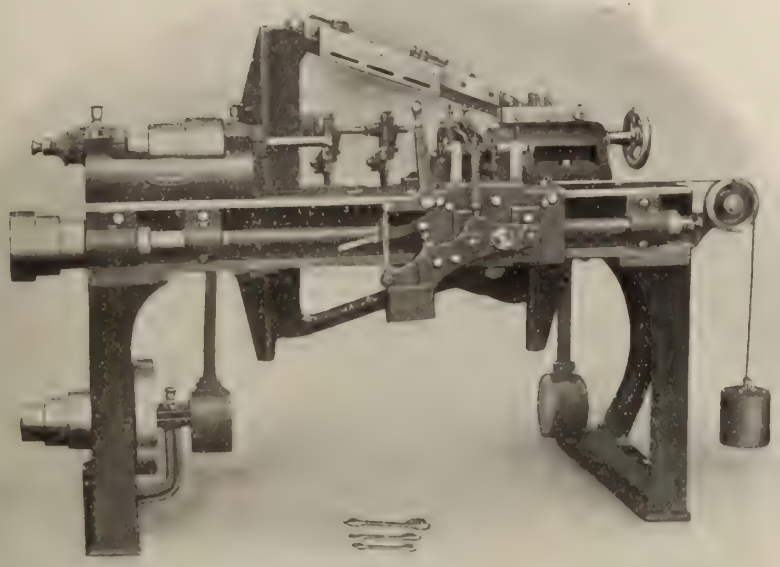

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THE REASON:

It is the best BABBITT METAL for all general machinery bearings in Lumber Mills or where wood working machinery is used.

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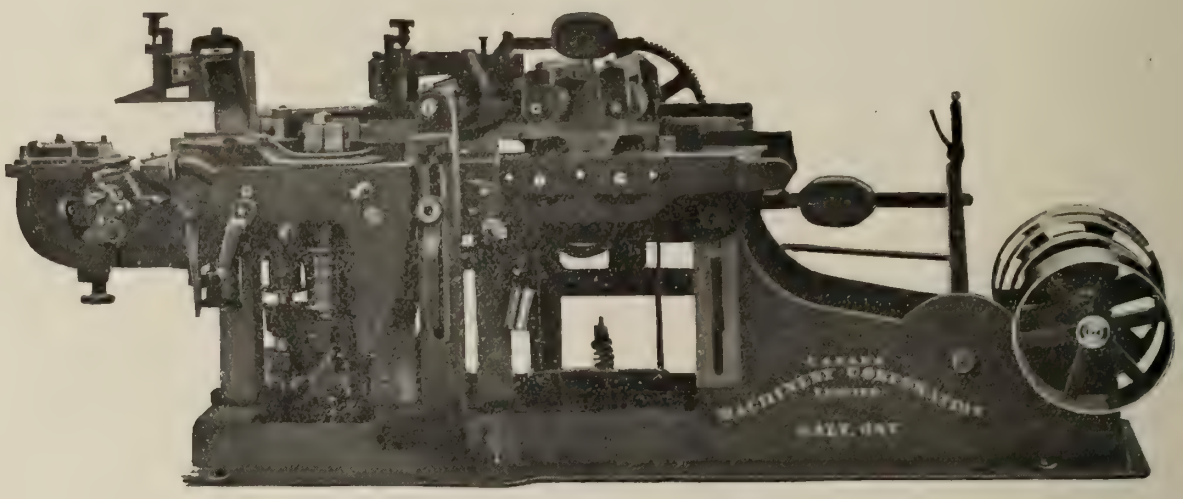

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**Vol. 11** **April, 1912** **No. 4**


## Lack of Small Houses in Industrial Centres

In all our smaller cities and towns throughout Ontario there is a rising tide of eagerness to secure new industries by the holding out of free sites and special exemptions and municipal loans and other attractions. This with the added attraction of a little cheaper labor than can be had in big centres and labor that is less troubled by wage and time questions because steadier employment is generally the rule in small places, has resulted in a great upbuilding of the small municipalities. Many a sleepy agricultural town has by the energy of a few wideawake men and the efforts of an industrial commissioner in two or three years become a full fledged, hustling factory town, or as they better like to call it, an industrial centre.

The influx of factories into these small places has found them unprepared. No homes were available for the workers and faster than homes could be built new workers have poured in. The result is that there is hardly a factory town in Ontario that is not afflicted with the evils of house congestion and where doubling up is not uncommon. Local builders, generally through lack of money, have found themselves unable to cope with the situation. The local men of capital have been reluctant to invest their money in building. Conservatism generally is the rule with those men of small cities or towns who have the money that might relieve the situation. They are nearly all afraid of the fast progress their home town has made.

It has often been urged that the persons who should attend to the housing conditions are the men who operate the industries, but then these men are usually putting back all the money they can make into their businesses. They must do it to keep up with the times and to face the fierce competition that prevails in every line of manufacturing. There is, though, in some places, a movement apparent that is backed by the factory owners to build houses for their workers. Whether it will become the general thing for manufacturers to build homes for their employees is doubtful. Many reasons opposing it can be urged: the chief that the employee living in the house of his employer is all the time under the control of his boss, either directly or indirectly.

Outsiders, such as the investors of Toronto and other places, have been slow to see the advantages and the profits that might be made in building homes for workingmen in the industrial towns of Ontario. Possibly they have been too busy with the wonderful opportunities at home to reach outside.

However, if there is any place where small homes for workingmen are needed it is in these same comparatively small places. Practically every manufacturing centre in Western Ontario is suffering from a dearth of these small homes. The cities and towns are suffering because in some cases the conditions deter manufacturers from extending and adding to their works as freely as they might do if they were assured of housing for extra help. But the ones who suffer most are the workingmen themselves. Now the men in the woodworking trades are not aversely affected because a woodworker with his knowledge of construction can do most of the work and capably superintend the rest on a home for himself and put up that home at the minimum of material cost. With a little money many of these woodworkers could find spare time to help those in other trades to put up homes and make a little profit thereby.

What is wanted in these manufacturing districts is small houses. The average workingman is robbed of the realization of the dearest ambition of his life because no one is building houses within his purchasing ability. What are wanted are four or five roomed cottages built possibly with some of the happy lines of the bungalow but without all that popular home's costly accessories and layout.

There is a great chance for builders to make good money in erecting small homes. In the small cities there is not that bugaboo of high priced land which prevents a man putting up a small house. In many of these industrial cities there is plenty of excellent building property to be got at five to eight dollars a foot. And from all of these industrial centres a cry is going up for homes—for homes that the workingman can buy. Builders should take a look around. Two days spent in investigating conditions might prove days most profitably spent.

## Specializing in Material for Large Contracts

Quite a number of manufacturers of sash and doors are refusing to take contracts for detail work, giving as their reason that there is too much trouble connected with it. Sash and door makers who are doing so are only following the example set by the mill men who took a similar view some years ago, and decided not to manufacture anything but the stock lines of mouldings and interior finish, etc. "Nothing in it," they said. So they decided to decline all invitations to figure on what at one time was regarded as very attractive jobs.

It will be found that these manufacturers are situated in that part of the country where the demand for the stock article is sufficiently large to make them independent of the more troublesome detail work. The time was, and not so long ago either, when these same men were only too glad to figure on anything that came their way, but the last few years have been record building years in Canada, and much of the material that has been used has been of the standard styles, both in sash and door and interior trim.

What is true of the increased demand for stock patterns is equally true in regard to the demand for detail work, and those who are making a specialty of this feature of the trade have had all they can han-

dle up to this time, and the prospects for this season's business are all that could be desired.

Specilization in stock and detail work is not without advantages. Take the case of a building contractor who also operates a small planing mill and sash and door factory. It often happens that he has a large building contract that calls for very little detail work. The balance of the material being of the stock pattern he can get this from mill men who make a specialty of this class of work much cheaper than he can manufacture it in his own plant. The detail work for this particular contract he does himself, along with any custom work that comes his way.

At another time this same builder may have a contract that calls for all detail work. The job being too big for him to handle, he places it with a firm that does nothing but this class of work.

So taking it all together this specilization of work has many advantages to both the builder with a small planing mill and the men who make a practice of either detail or stock work in large quantities.

### Autos and Motor Trucks

The popularity of the automobile and motor trucks has created a great demand for woodworkers. So great has the demand become that advertisements similar to the following often appear in trade journals and the large dailies.

WANTED: Woodworkers and carpenters to work on motor trucks and auto bodies. Steady work and good pay. Apply, etc.

The rapid growth of this industry is nothing short of being marvelous. Indeed it is safe to say that never in the world's history has any other industry reached anything like the same proportion in so short a time.

That the constantly increasing demand for auto and motor trucks has made changes in old established carriage and wagon shops is quite apparent by the fact that a large number of manufacturers who formerly confined themselves exclusively to either one or the other of these two lines, are now busily engaged in this comparatively new industry.

It must not be inferred by this that they have given up making carriages or wagons, as such is not the case. The fact is that this trade has been thrust on some—others have acquired it—and a mighty profitable trade it is, too.

### Some Big Figures

It has been stated that during the year 1910-1911, 28,000 new motor cars were registered in the United Kingdom. Eighteen thousand of these were of British manufacture. Just how many were made in Canada during the same period is not known, but the number must have been enormous. This is very clearly shown by the fact that factories built in this country during the past decade and especially equipped for the rapid turning out of automobile and motor trucks, have been taxed far bevond their capacity. Many of these plants have been enlarged from time to time and yet there was, and still is, an overflow of orders. This overflow is being taken care of by certain carriage and wagon makers who are doing what may be termed a fine side order business, manufacturing auto tops and motor trucks.

The phenomenal use of automobiles for business and pleasure, and their recognized value for these purposes, are well known. What seems strange is that of the five hundred or more motor trucks in use in Canada, only a small percentage are used by manufacturers of building material. This seems all the more strange when one takes into consideration the profitable trade extension rendered possible by this system of delivery. A motor truck, by reason of its greater speed and low cost of operation, will take the place of from three to four two-horse teams, and enable the manufacturer to make deliveries in a widely spread-out area at one-half to one-quarter of delivery by team.

These facts are enough to demonstrate the possibility of the motor truck as an aid in securing new business for the planing mill man, and in a measure is helping to solve the freight problem for the manufacturers in all lines of trade.

This industry is giving employment to an army of wood-workers who find the work pleasant and remunerative.

---

### Opportunities for Foreign Trade

The following enquiries have been received from England and other countries relating to Canadian trade. The names of the firms and their addresses can be secured by interested parties by writing to the Enquiries Department, Canadian Woodworker.

Any of our readers who are answering the enquiries should not fail to forward references—particularly if bankers references.

112. **Birch or Beech sawn stock.**—A Birmingham firm is open to import birch or beech sawn stock for furniture making. Can take several car loads at a time.

113. **Agent.**—A German manufacturer would like to appoint Canadian resident agent for the sale of pulleys of all kinds.

114. **Antique furniture.**—An old-established English firm of antique furniture dealers are open to correspond with Canadian purchasers.

115. **Box boards.**—A Lancashire firm is open to receive prices from Canadian manufacturers of box boards in the following sizes: 3 ft. x ⅝ in. x 8 in. (sides); 1 ft. 4½ in. x 1 in. x 8 in. (ends); 8 in. x 1½ in. x 1½ in. (corners); 3 ft. x ⅝ in. x 6 in. (lids and bottoms); 1 ft. x ⅝ in. x 3 in. (battens across lid).

116. **Maple meat skewers.**—A London firm desires to secure samples and quotations f.o.b. Canadian port, and c.i.f. Durban and Cape Town, for maple meat skewers from 4½ inch. to 16 inch.

117. **Spruce and lumber.**—A Havana commission merchant is in a position to handle spruce and lumber on commission.

118. **Box shooks.**—A Havana broker is anxious to act as agent of Canadian manufacturers of box shooks.

119. **Furniture.**—A Bristol correspondent makes inquiry for the names of Canadian furniture manufacturers open to establish themselves in this city.

120. **Belting.**—A Lancashire manufacturer of belting (leather, cotton, balta, &c.) would like to be placed in communication with Canadian importers.

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The effect of seasoning wood is to bring into the same space 10 per cent. more of the fibres than when the wood was green.

---

If a new hammer handle be rubbed well with a thin paste made of plaster of paris and linseed oil it will give it a good grip and be non-absorbent of moisture or grease.

# How to Estimate

**Written for the Canadian Woodworker by Wm. Fraser, Quantity Surveyor and Superintendent of Construction**

The ordinary contracting carpenter is behind the times in his method of estimating. He pokes over the plans and tries to find out how many joists it will take to cover a certain floor space. When he thinks he has found out the number of joists he next tries to bring them into so many thousand feet of lumber. Then for the labor he adds from $6.00 to $12.00 per thousand feet as it strikes his notion.

Why don't he get to work and measure the plans and find out how many squares of floor space he has

Table giving B.M. per square

| Centres apart | 12" | 16" | 18" | 20" | 24" | 30" | 36" |
|---|---|---|---|---|---|---|---|
| Scantlings | Feet Board Measurement | | | | | | |
| 2 x 2 | 33 1/3 | 25 | 22 1/4 | 20 | 16 2/3 | 13 1/3 | 11 1/9 |
| 2 x 4 | 66 2/3 | 50 | 44 1/2 | 40 | 33 1/3 | 26 2/3 | 22 1/4 |
| 2 x 6 | 100 | 75 | 66 2/3 | 60 | 50 | 40 | 33 1/3 |
| 2 x 8 | 133 1/3 | 100 | 89 | 80 | 66 1/3 | 53 1/3 | 44 1/2 |
| 2 x 10 | 166 2/3 | 125 | 111 | 100 | 83 1/3 | 66 2/3 | 55 1/2 |
| 2 x 12 | 200 | 150 | 133 1/3 | 120 | 100 | 80 | |
| 2 x 14 | 233 1/3 | 175 | 155 7/12 | 140 | 116 2/3 | | |
| 2 1/2 x 4 | 83 1/3 | 62 1/2 | 55 1/2 | 50 | 41 2/3 | 33 1/3 | 28 |
| 2 1/2 x 12 | 250 | 187 1/2 | 166 2/3 | 150 | 125 | 100 | |
| 2 1/2 x 14 | 291 2/3 | 218 3/4 | 194 7/12 | 175 | 145 5/6 | | |
| 3 x 4 | 100 | 75 | 66 2/3 | 60 | 50 | 40 | 33 1/3 |
| 3 x 6 | 150 | 112 1/2 | 100 | 90 | 75 | 60 | |
| 3 x 8 | 200 | 150 | 133 1/3 | 120 | 100 | 80 | |
| 3 x 10 | 250 | 187 1/2 | 166 2/3 | 150 | 125 | 100 | |
| 3 x 12 | 300 | 225 | 200 | 180 | 150 | 120 | |
| 3 x 14 | 350 | 262 1/2 | 233 1/3 | 210 | 175 | | |
| 4 x 4 | 133 1/3 | 100 | 89 | 80 | 66 2/3 | 53 1/3 | 44 1/2 |
| 4 x 10 | 333 1/3 | 250 | 222 | 200 | 166 2/3 | 133 1/3 | |
| 4 x 12 | 400 | 300 | 266 2/3 | 240 | 200 | 160 | |
| 4 x 14 | 466 2/3 | 350 | 311 1/6 | 280 | 233 1/3 | | |
| Feet Lineal per Square | 100 | 75 | 66 2/3 | 60 | 50 | 40 | 33 1/3 |

to cover with joisting at a certain length and distance apart. Then try and remember how many squares two of his men will lay in a certain time at so much per hour and place the value of their wages at so much per square. This makes estimating simple and quick. The table below will save many feet of lumber on a square.

If joists are 2 x 12 at centres the lumber per square as per table is 150 ft. B.M. and the value of same at so much per thousand is easily found. To which add the value of labor per square and there is the price.

If contractor gets staggered at knowing the number of joists he has to order by this method all he has to do is to look for the lineal feet given in the table, multiply that by the number of squares in his floor space and divide by the length of his joints.

Example

Try 36 sqr. of joisting 16 ft. long at 16 in. centres.

Table gives 75 lin. ft. in a square; × 36 squares= 2700 ÷ joist 16 ft., gives 168 joists to be ordered.

### Rule to Find the B.M. Figures

First—Multiply 100 by 12 and divide by the inches apart gives the lineal feet.

Second—Multiply the lineal feet by the sectional area of the scantling which gives the feet B.M.

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## Western Building Increase Offsets Eastern Decline

### Unfavorable Weather Conditions in East Reason of Decrease—First Quarter of Year Shows Increase of Eleven Per Cent. Throughout Country

Building permits for March show a decline of 14.5 per cent. for fifteen eastern cities, and a 29.9 per cent. increase for seventeen western, as compared with March, 1911. The increase, says The Financial Post, from the west offsets the decrease of the east, the total showing a 11.7 per cent. advance over March of last year. Although the actual increase is much smaller than that shown in February, the total—$11,585,295—which includes the returns from the thirty-two below-mentioned cities and those reported from seven additional cities whose last year's figures are not available—is much in advance of any month this year.

The prediction by a Fort William newspaper, that that city would hold the premier position with regard to percentage increase over all Canadian cities has proven true, the increase being 1806 per cent. Guelph's increase of 359 per cent. heralds the largest building year in its career, this month's figures including permits for several new factories. Winnipeg has the largest actual month's increase, and also the largest amount for this month, moving Toronto, which usually holds first position, into second place in the latter respect.

A large number of decreases are shown in the east. Toronto and Montreal being the chief offenders, and Vancouver in the western division has declined $713,508. In the east the decreases may be explained by the unfavorable weather conditions, but the decrease shown by Moose Jaw, Regina, etc., would seem to indicate that in these cities building activity is striking a more normal balance, as the weather conditions there, on the whole, have been favorable.

---

### Prospects of the Jobbing Planing-mill

What was once looked down upon as a forlorn hope and an expensive proposition in connection with the retail lumber business has lately become one of the best and most desirable undertakings in the woodworking world.

This industry has had a hard row to hoe for some cause or other and in times gone by has been known more as a money-loser than a moneymaker. The tide has turned, however. To-day a modern jobbing planing-mill in a good locality is really a better thing than a lumber yard, notwithstanding the fact that the lumber-yard operators have long fought shy of running planing-mills.

It is pretty safe to say that during the past two

years the planing-mill men have made better profits than the lumbermen and perhaps better than any other branch of machine woodworkers.

### Planing and Running a Planing-mill

It must not be assumed from this that anybody can erect any planing-mill at any place and make money easily. It takes brains to run a planing-mill successfully and also requires a natural gift in that line. Those that have it, though, are making money to-day in the planing-mill business and there is perhaps no better calling that the young man starting out in life may follow than that of planing-mill work, of learning the business thoroughly with a view to entering into it in the future.

The amount of planing-mill work called for has increased not only with the increased population of the country, but also in its relation to the population. Moreover, it has broadened out in the scope of its work. Now a very good jobbing planing-mill includes not only the machinery necessary to get out frames and interior trim from solid wood, but also a veneering department for putting up veneered doors and panels for interior work. Often, too, there is included lots of cabinet work in the planing-mill.

One could elaborate to quite an extent on cabinet furniture and like work involved in getting out the interior trim for some of the modern apartment buildings, but the main subject in view right now is the planing-mill itself and the fact that it is at present in better shape than ever was known before.

### Oldest Wooden Door

The Dominican Order possesses in Rome two churches of great interest, Santa Maria Sopra Minerva in the heart of the city, and Santa Sabina on the Aventine.

The latter during the closing years of St. Dominick's life was his home and headquarters. But the church was already very ancient when he took up the above there. Accordign to the Rosary, it was built A.D. 425, during the pontificate of St. Celestine.

Its founder is commemorated still in the original mosaic inscription dating from 431 on the western wall of the church, inside the entrance. The mosaic even now is a splendid relic of a very far distant age.

Remains of the second church are to be seen in the western corridor, or cloister, where are a number of early inscriptions; on one side the original twisted columns of pavonazzetto still support the roof, on the other they have been replaced by granite. It was from a window in this cloister that women were allowed to look out upon St. Dominick's orange tree.

The entrance door of the church is so ancient that it is said to be the oldest wooden door in the world; as it dates partly from the fifth century, it may be supposed to have been the original door of the church built by Peter the Illyrian.

### Weather Hits Building in Toronto

The cold weather and the snow of March had a marked effect on building permits taken out. Permits for 514 buildings were taken out last March as against 1,015 for the corresponding month last year. The total value for the month was $1,557,750 against last year's record of $2,210,770. However, this check to building operation is not expected to continue, and builders anticipate that this month and May will more than make up for the decrease, providing, of course, that there are no labor troubles, May 1st being the day when settlements are made with the men in the building trades.

### Big Building Boom in Busy Brantford

The prospects are for a building boom in Brantford, not of one, but two or three years' duration. That is the announcement made by a Brantford contractor who states that the rush of work is unprecedented in Brantford at the present time, and that so much work has been accumulating recently that it brings about civic problems of importance. Besides the new houses, the big buildings for Brantford which are in the immediate prospective form the basis of a substantial boom. The question of skilled labor will also enter very largely into consideration and if the work is to be completed with despatch it will mean an influx to Brantford of many engaged in the building trade. There is also the question of housing people. Brantford has been growing faster than contractors can build for the accommodation of newcomers. This is but an incident of the big boom which appears in the immediate future. The problems which Brantford's boom carries with it are not a drawback; they are merely incidental, and if anything mean an impetus to business. For the sake of the boom Brantford is willing to meet the problems, and no doubt the solution thereof will mean decidedly a Greater Brantford.—The Brantford Daily Expositor.

### Building Operations Brisk in Berlin

Twenty-nine building permits have been issued by Inspector Cook for the quarter ending March 30th, for a total cost of $53,000, being an increase of $10,000 compared with the same quarter in 1911. New freight sheds, costing $6,000, will be erected on Linden street here this spring zy the Preston and Berlin Railway.

### Making Paper Board from Saw Mill Refuse

The report of Arthur D. Little, of Boston, as chemist to the American Paper and Pulp Association, notes that a large plant is nearing completion at Bogaluse, La., for the manufacture of boards from southern pine sawmill refuse by a new process involving a preliminary steaming of the wood during which it is intended to recover the turpentine. The steamed wood then passes over a set of eight pairs of heavy rollers by which it is crushed into flakes, the fibres composing which are finally separated in the engine. The plant is equipped with digesters for cooking a portion of the wood by a soda process for admixture with the fibre produced by the process just described.

### Coat of Paint for Eiffel Tower

Every five or six years the Eiffel Tower in Paris is given a fresh coat of paint, at a cost of from $14,000 to $16,000. The tower is scheduled for another change of dress next month. Fifty painters will be employed for four or five months in covering the 180,000 square yards of its surface with a shade of paint yet to be decided on. The tower started 22 years ago in orange, wore red in 1893, golden yellow in 1899 and silver white on the summit and chrome yellow at the base in 1907. The tower is now used as a wireless telegraph station, as a post for an electric device to prevent hailstorms and as a guiding mark for aviators.

# Finishing Interior Woodwork

The necessity of using cheaper woods to-day in place of the hard varieties for the interior finish of our houses has developed the art of staining and varnishing so that beautiful effects in grain can be obtained with satisfying results. In the hands of the novice, these woods can be made to yield a durable and artistic finish that was quite beyond our forefathers. In order to obtain the best effects however, the woods must be classified and be treated differently. Not all soft woods will take stains alike, or at least not the common kinds of stains.

For instance, mahogany stain should not be used on such woods as oak, ash or chestnut. These woods have too pronounced a grain and characteristics to give good results with mahogany stain. But birch, cherry, pine or whitewood take the rich red-brown and lighter shades of mahogany with gratifying results. The surface can be polished to a semi-gloss finish or the dull natural finish, so that a good imitation of the mahogany wood is obtained. In the semi-gloss finish an effect is obtained that resembles the waxed and hand-polished old mahogany of old days, and it can be wiped off with a damp cloth without injuring the gloss. Mahogany stain finish can be successfully used with hazel, spruce, gumwood, Washington fir and California redwood. Hazel wood, which is quite inexpensive in some localities, can be stained a beautiful gray or moss-green color, and with a rich brown stain it greatly resembles Circassian walnut.

Cypress is a common wood now for interior finish, but, like ash, chestnut and bass, it lends itself beautifully to weathered effects. Time and exposure tend to produce a mild change in color effects, and, taking advantage of this, a little stain or plain varnish treatment will greatly improve its appearance. By using light shades of brown on such woods, varying tints which help to intensify the grain will harmonize beautifully. Cypress wood contains a great quantity of resin and methylene, and some good liquid filler is needed over the coat of stain to seal the grain. Otherwise the resin will exude at times and thus spoil the finish. The stain is applied first so that it will dye the wood, and then the filler seals the grain and prepares a smooth surface for the finishing coats of stain or varnish. The use of fillers is sometimes of great value in treating woods. Some of the very open-grain woods are much better for a coat of filler first, and again the stain is used first to secure a dull or natural finish.

Ash is a wood susceptible of many different kinds of artistic treatment. A beautiful antique appearance with it can be produced by applying a dull brown stain and filling the grain with copper-green pigments. In imitation of old wood, weathered and saturated with salt water, ash is sometimes treated with a black stain and a gray filler. A coat of varnish rubbed down to a dull finish follows.

Maple is a wood that takes the soft green and silver-gray stains to perfection. This wood is susceptible to a high polish, and gives better effects in this way than with a dull finish. Bass or whitewood is used freely for interior home work of all kinds, and it shows well under mahogany or any of the dark stains; but it is a wood that shrinks and checks considerably in the drying, and unless well-seasoned timber is used the results will be very disappointing. Beechwood is also a poor one for interior use unless it has been thoroughly seasoned, and then it stands up pretty well. Birch shrinks a good deal in the drying, and though it is a hard wood and strong and fine of texture it is often very unsatisfactory because of immature drying. There is the red and white birch, and they take stains differently.

In a general way, woodworkers divide the ordinary commercial woods used for house trim into two great classes. The open and the close-grain woods need different treatments. The close-grain woods need no filler, and the open-grain ones do better with a filler. In the treatment of all woods with stains, the effect which time and exposure will have on them must be considered in the selection of stains. The woods that darken through time and weather should not be stained with the dark shades, but with rather light hues. The effect will then gradually darken and produce the most desirable results.

While the novice or home owner can experiment with stains on new wood, and then, when the desired results are obtained, treat all the interior finish in the same way, it is not nearly so easy to work over old wood and get uniform results. Yet, in the hands of an expert, old interior woodwork can be treated so that wonderful results are produced. Even painted surfaces can be scraped down and stained to suit the most exacting needs.

There is only one successful method of doing this. The old paint and stained surface must be scraped down to a depth below where the pigments have darkened the wood. No patent preparation for removing stain and varnish will answer. Plenty of hard elbow work with a good scraper must do the trick. In reviving old woodwork it will often be found that the paint or stain originally applied has dyed the surface so deeply that it is impossible to remove all of it. It may be necessary then to darken the whole surface a shade or two deeper than the natural color of the wood. In scraping oak, it may be found that parts of it are very much blackened by time and exposure. Scrape and sandpaper as thoroughly as possible, and then use a dark oak stain, so that a uniform color is obtained.

The light woods are the hardest to treat in this way, and it may be then that maple, whitewood or beech must be stained some darker shade to get a desirable effect. If light effects are desired in the room, and the old wood has darkened in places so that it cannot be removed by the scraper and sandpaper, it may prove more satisfactory to paint or enamel the surface with some light tints. The condition of the wood, however, can never be foretold until it has been scraped and sandpapered. This process can be carried to completion, however, without in any way spoiling the job for painting. When the surface is thoroughly clean, then the stains can be used. If the result is not satisfactory, the surface can be painted. The stain will not interfere with the paint. Some of the fine interior paint enamels produce beautiful surface finishes, but enamel, unlike paint, is easily scratched, and it does not do so well as paint for wood that is subjected to general use and handling. While a bright enamel would answer well for a mantlepiece, it would not be very serviceable for a window sill, where hands and arms placed on it would soon wear

off the lustre. Veneered doors can be treated the same as solid doors in refinishing, but in doing this one should always be sure to paint the underside of the door also.

### Soft Drying

There is coming into use, among those who study cabinet woods carefully and are progressive and up-to-date in their equipment, a new term in connection with dry-kiln work, which is best expressed in the words, "soft drying." It has been discovered that there is more in the drying of lumber and veneers for cabinet work than the mere ridding it of surplus moisture. An important consideration is that of removing moisture, and at the same time leaving the wood in the best shape for work—leave it soft and pliable instead of hard and harsh.

The practical good of this idea, as applied to veneers, is found in the fact that there is less disposition of "soft-dried" veneers to wrinkle and crack when flattened out, and of equal importance is the fact that the "soft-dried" stock will take glue more readily. The glue will not crawl on it and refuse to take hold, but will work naturally and easily.

There is a mighty big difference in drying wood—that is, a big difference in the texture of the wood after it is dried, and a whole lot of this difference is due directly to method or lack of method in drying. A scientific study of the treatment of wood in the process of drying develops the fact that it is possible to dry wood and yet keep it in nice workable shape; not get it so hard and harsh that it is difficult to get tools to cut it and difficult to do anything with it in the way of gluing and taking out kinks and wrinkles.

So, if you have not given the subject of "soft drying" any consideration heretofore, it is time to get after it. Make inquiries among the dryer men, and others who know, and set to work developing the idea of not only drying stock thoroughly dry, but also to have it retain as much softness as practicable.

### Solid Cabinet Work

Fancy figured work is now so commonly used in the form of veneers that not only the general public, but the trade itself, sometimes fails to understand and appreciate the exact standing of solid lumber in cabinet work. Veneer has made wonderful progress and will continue to do so, but it has by no means crowded out solid lumber. In fact, every now and then, there is noted in some quarters a sort of reaction—a heavier call than formely for furiture and other cabinet work done in solid wood.

This point was recently brought out quite forcibly in a conversation with the head of a furniture company, which specializes in fine bedroom furniture. The majority of stock displayed in the show windows by this concern is of figured veneer wood and often is inlaid. In the conversation referred to, the head of the company sated that while it made a strong feature of this inlaid veneer work, it has also found a large call for solid work, even in mahogany. He stated that his company was probably using more solid mahogany to-day than ever before. He said it did not convert the finest figured wood into solid lumber, as that almost invariably is made into veneer, although it does use some nicely figured wood, even in solid mahogany. He further stated that not only his company, but many others, do the same thing. More veneered furniture is now being made than ever before, and at the same time more solid lumber is used to-day than was used three or four years ago.

What is doing in mahogany is also a guide to the situation in oak and other cabinet woods. There is a continued enlargement in the call for veneer, but there is also a strong call for solid lumber in cabinet work and this call seems to be insistent enough to suggest greater possibilities in the future for solid quartered oak than the trade may look for. A little discouragement has been felt in quartered oak circles the past season, and some manufacturers have been afraid that the progress of veneer is interfering seriously with the future of good wide stock in quartered oak lumber. However, if the prediction of this furniture company are right, another year may see an unexpectedly heavy demand for stock in quarter-sawed lumber.

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### Some Veneering Hints

Broad moldings of the ogee or cove type are frequently used in furniture manufacture. For veneering of this kind the veneer should be cut to the proper width and then the separate pieces of veneer fastened together with tape.

The best way to accomplish this is to have a zinc covered table upon which the gluing is done. One piece of veneer is clamped down by means of a block and "go-bar," the go-bar being a hickory stick about eight feet in length and from three-quarters of an inch to an inch through. The ceiling over the table is covered with matched boarding to receive the upper end of the go-bars.

The go-bars are of such a length that when they are forced between the clamping blocks and the planking or boarding overhead they are bent about a foot from the vertical so as to take the shape of a bow.

After one piece of veneer is clamped down the next one is brought so that its edge butts close to the first and is clamped with the go-bar. By rapping the clamping blocks back and forth with the hammer the edges of the veneer can be brought into accurate contact, after which they are secured together with a piece of adhesive tape or by gluing on a strip of cloth. In this way the strips of veneer are glued together into pieces the full length of the molding stick.

Accurately made caul blocks must be provided to fit the back side of the veneer. The veneer is then covered with glue applied to the molding and clamped down by means of the caul blocks. In some instances thin sheets of zinc are used on the face of the cauls to prevent the glue sticking, while in other cases the face of the veneer is covered with paper which is sanded off in finishing the veneer.

By having the back of the cauls flat several cauls and pieces of molding may be piled one on top of the other and then the entire mass clamped in the press.

For highly ornamental work the grain of the veneer is generally run crosswise of the molding. In the case of brittle veneer it may be necessary to cover the entire back of the veneer with paper so as to prevent it from cracking or breaking while the pieces are being assembled and prepared for gluing to the backing stock.

With cheap work where the accurate matching of the veneer is not so important the go-bars and clamp blocks are not necessary. In such a case the pieces of veneer are butted together by hand and joined by adhesive tape.

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International tile layers contemplate the establishment of a universal apprenticeship system.

# Heating the Wood before Gluing. Is it Necessary ?

Why this heating? It is supposed to be required in order to make the glue perform its function in the best possible manner. But whether this heating is really required and whether such heating improves the quality of the glue work seems doubtful in many cases.

This custom of heating the object which is to be glued dates back to the times when all stock was air dried, and when the workroom was more or less open and poorly heated. Under such conditions the heating of the stock was a necessary precaution, because this heating by driving out some of the moisture in the wood raised the receptiveness of the wood for liquid glue, at the same time preventing the chilling of the glue liquid, before this liquid had a chance to lay hold on the wood surface. But with the present kiln-dried lumber and steam-heated workrooms the heating of the lumberbefore gluing can in many cases safely be reduced and in some cases entirely be omitted.

One thing is certain, heating as now done in many cases is excessive. The writer has inspected a number of hot boxes; as a rule the temperature was always over 150 F. The stock was often so warm that handling it with bare hands was not agreeable.

How Much Heat is Required? If the stock has enough heat to keep the liquid glue from jellying the moment the glue is applied, that will be enough to make it possible for the glue to perform its function. A temperature of 100 degrees F. (around blood heat) suffices for this purpose; as high as 110 F. may be allowed, with 120 F. as the extreme limit.

Length of time for the stock in the hot box depends on the thickness of the stock and the temperature in the workroom, or rather the temperature of the stock itself. If the stock is brought in from the outside or from a cold room, more time is required, but this bringing of the stock from a cold room and direct to the warm workroom for gluing it up within an hour or two should not be practiced. Supposing the stock to have been kept in the workroom where the air, 4 feet from the floor, is not below 70 F., the heating of one inch stock for one hour in a hot box of 100 F. should suffice; provided the stock is piled in such a manner that the heat can circulate freely. Practical experiments heating one-inch pieces for one hour have demonstrated the fact that the wood will lose up to three per cent. moisture, if heated for one hour up to 100 F., and that suffices for the purpose of fitting the wood for the glue both with regard to dryness and heat.

Is It Necessary to Heat the Stock? In many cases it is not required. Where the stock is kiln-dried and has been kept in good condition and stored in a place having a temperature of about 70 F., and where the workroom also is kept constantly at 70 F., in such cases good joint work can be produced without the heating of the stock. Joint tests made on pieces warmed up to 100 F., and on the same pieces glued up, while the wood has only 70 F., do not show any more strength than those warmed up to 100 F., although these warmed-up test pieces had more glue in the joints than those glued up on wood having a temperature of only 70 F. But the difference was this: The warmer wood absorbed more glue, and the glue penetrated further into the wood, even as far as 5-32 of an inch some of it went, while on the test pieces of 70 F. there was less penetration. Though these latter pieces had considerably less glue in the joints, the glue was better placed, being massed exactly where it was wanted, namely, as a bonding layer between the surfaces, while a large portion of the glue taken up by the wood brought up to 100 F. was absorbed by the wood and wasted, inasmuch as it did not serve the purpose of bonding the surfaces to each other.

Is this heating Overdone? Yes, and in a majority of cases. Stock so warm that it is uncomfortable to even the hardened skin of the operator's hands, and cauls that have to be handled with the aid of leather nippers, is what we find in a majority of cases. The trouble is, that those in charge of glue handling insist that they know all about it; and in many cases they even refuse instruction.

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### Fire Dangers of Steampipes

Steampipes in contact with wood are admittedly the cause occasional fires, though manifestly it is impossible to make a definite statement of the relative hazard from this source.

It must always be borne in mind that in fires, destruction is frequently so complete that the assignment of a cause is more or less a matter of conjecture. However, from our experience and that of others interested in this subject, there have been a number of cases in which steampipes, under a variety of circumstances, have been without question a fire cause.

There is considerable diversity of opinion as to the circumstances under which such fires may be expected to occur, and the local conditions which contribute there. It is self-evident that the hazard is materially increased where the heat is in any way confined, or where contact is with materials more inflammable than wood. Particular care must be taken to guard against the presence of materials which are notably subject to spontaneous ignition, such as celluloid, coal dust, and oily waste.

A number of investigators have attempted to produce fires by bringing steampipes into contact with various combustible materials, but as the duration of the experiments was comparatively short, few actual fires resulted. The conclusions generally drawn, however, were that any steampipes, no matter how low the pressure, would in course of time produce charcoal, and that when this stage was reached positive danger existed.

Charcoal is unquestionably subject to spontaneous ignition. This is due largely to its peculiar ability to absorb from the air many times its own volume of oxygen. This is held in the minute pores, which exist in all forms of wood charcoal. The combination of this oxygen with the carbon may take place with sufficient rapiditv to raise the temperature to the ignition point. Furthermore, charcoal formed at a low temperature is known to have a low ignition point.

Where steam is kept on a system continually there is less danger than where it is intermittently, according to some investigators. The reason advanced is, that when allowed to cool the charcoal has a better opportunity to absorb oxygen than if kept hot at all times.

Another factor in moisture. Experiments have

shown that charcoal, once wet and dried afterwards, is more dangerous than that which has remained dry, ignition points being well below the boiling point of water in a number of laboratory tests.

Another factor is moisture. Experiments have shown that charcoal, once wet and dried afterwards, is more dangerous than that which has remained dry, ignition points being well below the boiling point of water in a number of laboratory tests.

In our opinion reasonable precautions should be taken to keep steam pipes from contact with woodwork or other combustible material. This is of more importance with high pressure than with exhaust steam pipes, and more so in confined spaces than out in the open where there is free air circulation and freedom from accumulation of combustible dust and dirt.

There are two general methods of keeping steam pipes free from contact with combustible material, the first being through the use of an insulator, such as pipe covering, and the second by supporting them rigidly at a safe distance.

Wherever pipes pass through concealed spaces, covering should preferably be carried for the entire length, to avoid future contact with substances which may get into these spaces. On new installations solid covering and collars can be used. but if piping is already in place split covering, wired together, and split collars make the partial taking down of piping unnecessary. If desired, a metal supporting place can be used at the ceiling instead of a collar.—Quarterly of the National Fire Protection Association.

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### Another Fire Which No One Saw

Late in the evening a watchman of the McLaughlin Carriage & Motor Car Co., Ltd., Oshawa, Ont., discovered that a fire had occured in the woodworking department on the second floor of the main building, but that it had been completely extinguished by one Grinnell automatic sprinkler. Upon investigation, the watchman found that the fire started in a box of sweepings on the floor and had extended into a pile of hardwood carriage top stays, a few of which were charred. The sweepings had been forgotten and left in a wooden box near a newly installed machine. It is possible that a piece of oily waste had been dropped into the box, and that later spontaneous combustion took place. The loss was so slight that no claim for damages was made.

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### A Progressive Industry

Among recent additions to Woodstock's industries, the planing mill and lumber yards, established about a year ago, at the corner of Ingersoll avenue and Riddell street, by Mr. A. J. McKinney is deserving of special notice. This industry, which, by the way, started without any municipal assistance whatsoever, has developed into one of the best of its kind in this district. The management reports that during the year 1911 the business amounted to over $60,000. The factory is well equipped with modern planing mill machinery and employs from fifteen to twenty experienced and well paid mechanics. The plant, which is operated by electric power, has been selected with the idea of manufacturing economically, everything in connection with the frame work for the building trade.

### The Man of 45

"Among the men I hire, nine out of ten are better workers at 45 years of age than are men of 25 or 30," declared the secretary and manager of a Chicago commercial house. This executive believes that the man of 45 or thereabouts is in the prime of life, physically and mentally. Men of mature years are more reliable, he avers, more trustworthy, and are not apt to be possessed of that restlessness and indecision which so often characterizes youth, and which leads younger men continually from one position to another. The average young man in business, he holds is always seeking a "soft snap" job, and is not content with sticking it out with an employer through thick and thin until his services become highly valuable and perhaps indispensable.—Business Magazine.

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### Sane, Sound Advice

In a salmon cannery in Western Canada there hangs this:

The Ten Demandments

1. Don't lie. It wastes my time and yours. I am sure to catch you in the end, and that is the wrong end.

2. Watch your work, not the clock. A long day's work makes a long day short; and a short day's work makes my face long.

3. Give me more than I expect, and I will give you more than you expect. I can afford to increase your pay if you increase my profits.

4. You owe so much to yourself you cannot afford to owe anybody else. Keep out of debt, or keep out of my shops.

5. Disohnesty is never an accident. Good men, like good women, never see temptation when they meet it.

6. Mind your own business and in time you'll have a business of your own to mind.

7. Don't do anything here which hurts your self-respect. An employee who is willing to steal for me is willing to steal from me.

8. It is none of my business what you do at night. But if dissipation affects what you do the next day, and you do half as much as I demand, you'll last half as long as you hoped.

9. Don't tell me what I'd like to hear, but what I ought to hear. I don't want a valet for my vanity, but one for my dollars.

10. Don't kick if I kick. If you're worth while correcting you're worth while keeping. I don't waste time cutting specks out of rotten apples.

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### A Simple of Means of Removing Splinters

None of the small accidents to which everyone is liable is more annoying than to have a sliver of wood stuck into the hand. Moreover, it is very painful if not properly removed. If the wood of the splinter is soft its removal is not easy if attempted with a needle or other sharp instrument. Steam may, however, be employed without inconvenience or pain, and is very effective. A wide-mouthed bottle, such as a milk bottle, should be filled nearly full of water as hot as the glass will stand, and the injured part placed over the mouth of the bottle, pressing down slightly, and preventing any steam from escaping. This will cause the flesh to be drawn down, and in a minute or so the steam will extract the splinter, at the same time relieving all inflammation.

# The Bench and Machine Men Should Work in Harmony

Why is it there is a sort of inborn dog-and-cat enmity between the machine men in the average planing mill and the cabinetmakers or bench men who put the work together? It is not only in planing mills, either, but in practically all wood-working institutions where machine men get out the work and carpenters or cabinetmakers put it together. There is no room for argument on the point of the existence of this enmity. The question is, why is it? If one would put this question to the workmen, either at the bench or at the machine, there would probably at first be some surprise expressed that there is a lack of fellowship, but close investigation will usually develop the fact that there is generally a lack of harmony between the two forces. Now and then a man operating a machine and one working at the bench will be good friends, but as a rule the bond of fellowship is missing, and in most places there is an ever-ready disposition of those on one side to blame those on the other for shortcomings in the work. The men putting up the work find fault with the machine men when, after it is partly put together, they have to do more machine work on it, during the course of which they sometimes run into nails with the band saw, etc. The bench men show a mean spirit, also, and some lack of generosity, when a machine man wants to use the bench man's tools or the bench man wants to use the machine for a little while. In fact, this enmity is shown in various little ways, and while it is not what might be termed active animosity, there is a lack of harmony, instead of all working and pulling together, that at times is something of a stumbling block to the institution. The machine men and the bench men should work together for their mutual good.

There are times when the bench man can give pointers to the machine man about how he may save himself trouble at a point where he is doing unnecessary work, and explain to him how he may make the work easier for the bench men by doing some work at the machine which would relieve the bench man of quite a lot of tedious labor. What they seem to need is to get together more, both figuratively and literally speaking. It would do some good to cross over and see one another and exchange ideas during the noon hour, and at other times when they come in contact, so that each may lighten the burden for the other, instead of one making it harder for the other without getting much relief himself.

This subject is meant not only for the men themselves, but for the attention of the employers, who, if they will keep it in mind, may do much to promote a better spirit of fellowship between the bench force and the machine force, for the benefit of all and the improvement of the work in general. Try it.

## Some Emery Wheel Pointers

In wood-working plants where a large number of machines are in service, the emery wheel is subjected to perhaps more abuse and neglect than any other object. An emery wheel should be in charge of one man, who is a good grinder and knows how to take care of a wheel. It is up to all mill owners and foremen to get all the information available.

The emery wheel consists of grains of emery and a composition called the "texture," which binds these grains together. In regard to the size of the grains the wheel is said to be fine or coarse in grain. In regard to its texture it is called hard or soft. To distinguish the grades, they are numbered from the dimension of the meshes through which the grains pass. Thus, Grade 10 means that the distance between the wires of the mesh is ten to the inch.

Some of the substances used to hold the grains of emery together are hard rubber, shellac, ordinary glue and a mixture of linseed oil and litharge. The relative hardness of the texture is indicated by letters. Thus "A" indicates a soft wheel; "B," a harder wheel; "M," medium wheel, and so on. The vitrified emery wheel is made with a cement which contracts slightly while cooling, leaving small pores or cells, through which water, introduced at the centre, is thrown to the surface by centrifugrl force. This flow of water operates to carry off the cuttings and the detached emery.

The grade and texture of the wheel in certain kinds of work is fairly within the following limits: Wheels of coarse grain and hard texture are suitable for rough grinding, such as making machine knives and in other rough work in which accuracy and finish are not required. Wheels having medium grains and hard texture are serviceable in grinding machine knives and gumming saws, etc. Wheels with medium grains and soft texture are suitable for free cutting on broad surfaces of iron, steel or brass. Wheels with fine grain and soft texture are suitable for grinding fine tools, such as machine cutters for which the duty is light, but the demand for accuracy imperative.

One of the important conditions of accuracy is that the wheels vary in the least possible degrte in shape or diameter from start to finish in a series of cuts. A wheel that does not run perfectly in balance when put in service should be returned to the manufacturer. A wheel with fine grain and hard texture is suitable for smooth grinding on soft metals, such as cast iron or brass. A wheel glazes or gums if its grains are held too long by its texture.

The ideal duty of a wheel consists in having its grains displaced as soon as they become unfit for further service. As the wheel in use wears out of true, it can be trued by a little black diamond point, and if very accurate grinding or a fine finish is required, the diamond should be carried across the surface of the wheel by the long slide. If it is required to do heavy cutting, the emery wheel should be trued at a comparatively slow speed. If the wheel becomes glazed, its surface may be improved by a coarse file or a piece of pumice stone.

Emery wheels should be kept clean and free from oil, and should not present more than 1/16-in. to ⅛-in. to the surface of the work. This provision is particularly applicable to cup-shaped wheels. If it is desired to put an exceedingly fine finish on such work as machine cutters, etc., after they have been ground true, a wheel of 80 or 100-grade emery, with not more than ⅛-in. face, should be used for taking this finishing cut. However, very finely finished surfaces can be obtained with a wheel as coarse as 40-grade emery, if the work is passed very slowly across the face of the wheel and the wheel allowed to cut but slightly.

In regard to finish, it is to be observed that the harder the substance to be ground, the coarser must be the grade of the wheel. Thus the finishing of steel requires a coarser grade of wheel than the finishing of copper. If a wheel is too hard for the substance

it is cutting, it may heat or chatter; this can be obviated somewhat by diminishing the width of the cutting surface, but it is much better to use a softer wheel and full width of cutting surface.

As a rule, a soft wheel can be run more rapidly than a hard one without changing the temperature of the work; accordingly there is an advantage in two spetds for the emery wheel spindle. For internal grinding the wheel should be softer than for external grinding, and the work should revolve so as to give the wheel opportunity to do its work.

There can be no hard and fast rule for the speed of emery and polishing wheels, since there is so great a variety in the nature of the work to be done, but a peripheral speed of about a mile a minute for ordinary emery wheels is commonly regarded as good practice. For water tool-grinders the speed is usually about two-thirds that of dry grinders, while, on the other hand, polishing wheels are generally run at about one and one-half, and buffing wheels at twice the speed of dry grinders.

### Brazing Band Saws

There are several methods of brazing band saws, among which is the use of brazing tongs and the blow pipe.

In any case the saw must be scarfed and held securely in place by clamps. A piece of solder or soft yellow brass is then placed on the joint, which must be liberally dusted with powedered borax. Heat may be applied either by a heavy pair of red-hot tongs or by means of a blow pipe, with a piece of charcoal held under the saw blade. Apply heat until the brass or solder melts, then press the saw ends with another pair of tongs, slightly heated in order that the part brazed may not be too hard. The temper is destroyed at the point of brazing, but the space of untempered steel is so small that the working of the saw is not affected to any great extent. After brazing, true up the joint with a file, sharpen the saw, if necessary, and it is again ready for use.

### Cask Making Machinery

A demonstration given at Poplar (suburb of London), says the London Times, shows some new machines which have been designed for use in the various processes of cask making at speeds which are claimed to be very much higher than those achieved up to the present. The wood for the staves, having been cut to the requisite length, is passed in pieces measuring six inches wide and about one inch thick, or twice the thickness of a stave as used for a cask, through a molding machine, which by means of rotary cutters placed on horizontal spindles above and below the plank gives a bevel to the stave, so that when assembled the cask is quite circular. A circular saw also embodied in the machine cuts the 6-inch wood into 3-inch widths, these double staves being produced at the rate of 80 a minute. The next process is known as profiling. In it the machine takes the double staves and, by rotary cutters mounted on vertical spindles, tapers the edges from the center toward the ends so as to give the "bilge," and at the same time cuts tongues and grooves for the joints of the staves. This process is performed at the speed of 40 double staves a minute. The double staves are then divided into single ones and are passed on to a croving machine, which provides the cross groove and chamfer at the ends to take the bottom and head of the cask. It also makes a saw cut across the center to enable the staves to be bent easily when their ends are drawn together to form the cask. The staves are assembled in a circular frame and are taken to a bilging machine, which, by means of tension applied to a wire rope passed round their ends, compresses them together sufficiently to hold the head and to enable the iron hoop to be placed in position. All the machines are adjustable for the manufacture of casks in various sizes, and all the movements are provided with ball bearings.

### Confusion of Names of Commercial Woods

No branch of forestry requires the investigation of men of science more than the history and structural characters of the commercial timber trees. It is lamentable to see so many talented men devote their entire lives to the study of small groups of relatively unimportant plants of the desert or the ocean, while we are still ignorant even of the botanical names of a good many trees yielding timber of commerce. A number of the trees of West Africa, which produce a large percentage of the choicest timber used in England, Canada and United States for furniture and high-grade cabinet work, are now known in the trade by no other name except mahogany; when in reality they do not belong to the mahogany family at all. Coccobola from Central America has been imported into this country for over a hundred years, but today no one seems to know what tree yields this wood. A number of examples of this kind could be cited in regard to important timbers which come from the tropics.

This lack of knowledge is the chief reason why so many different woods which bear the slightest resemblance have been given the same common or trade name. Such a duplication of vernacular names has produced among the woods of commerce a confusion and brought about a mass of errors that it appears almost hopeless to expect to unravel them. For instance, there are now more than fifty dicerent woods sold under the comprehensive trade name mahogany; there are more than twenty-five referred to under the name cedar; there are more than a dozen roswoods; qually as many satin woods, iron woods, and box woods, not to mention a number of beef woods, ebony woods, sandal woods, teak woods, gum woods, walnuts, and a host of others, named according to the fancy of the shippers and importers. The duplication of names has become so complicated that dealers are now unable to know what kind of mahogany, cedar, walnut, or gum to supply when their customers order woods by these names.

Timber constitutes a very important product of the foreign commerce of this country. To many the number of different kinds of woods imported will be a matter of great surprise, but numerous as they are now they are few compared with those which will be introduced into the American markets when the forest resources of Africa and South America become more generally available. Not a month passes but what some importer adds another mahogany, cedar, or rosewood to the long list of substitutes. Public attention and the investigation of scientific men are being gradually directed to this branch of work, and it is hoped that something can be accomplished which will prove helpful in protecting the purchasers from getting the spurious kinds when genuine sandal wood, rosewood, or mahogany is specified.

# Bullheads and Tension

A certain filer, some time ago, was having trouble with his bands making bullheads, and was much worried. The company was inclined to be lenient with him and desired to see him get right. He was conscious of all this and was doing the best he knew how, but still the bullheads. The mill track and carriage were in pretty good shape, and he knew the trouble was in the filing room, but where? As in all cases of this kind, nearly everybody around the mill, from the water boy to the super, had an idea where it was. One said tension (he had heard somebody talking about tension), another said too much tension, another too much hook, another not enough hook, and so it went, each confiding to another what was the real trouble. But let us look in the filing room.

Various contortions were being enacted by our filer friend. The tension was changed several times; now a deep centre, tapering gradually toward the edges; next deep tension under the teeth, the centre showing slightly tight on ends of saw when tested with a straightedge; next deep tension out toward the back, and next a tire or flat place under the teeth, then deep tension from centre to tooth edge. In fact, the tension was petted, then outraged in every conceivable manner.

I will here mention that the bullheads were inclined to be out of the log. The back was long, the hook was ample, with good throat room, the swage was working fine, and the shaper dies had been ground to give good clearance from the face back. He had just decided he saw the way clear, when the super announced he had written for a neighboring filer to come and help him out. Now, our friend did not want this for two reasons. First, because he had been in the game long enough to think he could get straight without outside assistance, and second, because he did not want it said he had to be helped out. On the other hand, he owed it to the company to put his feelings in his pocket and give them straight lumber for their money.

Next morning, the neighboring filer, who, for convenience sake, we will designate as Brown, because that was not his name, arrived. He first looked wise. He next looked at the saws cut and then considered the weights on the mill, mentioned nineteen years of experience, and again looked wise.

Now, it was our filer friend's desire to find out what the trouble was without letting Brown put him in a worse light than that in which he stood. He knew he was in bad, but had an idea that Brown, with all his wise looks, did not have it all. Brown now proceeded to make a thorough examination, with both straightedge and tension gauge, going through various maneuvers and looking wise some more.

Brown suggested cutting the swage down to eight gages, which was a good plan and which our friend had overlooked previously. He next suggested the throat be made a little deeper, which was done. Next came a general talk on band saws, their eccentricities, their failings and their tricks, the causes of bullheads, which he never had, and which he had mastered in his nineteen years' experience. He then calmly told our friend that the tension was not right —then some more wise looks. S-st! Brown had a secret! The filer could see that now; everything was indeed as clear as mud. It was one of those deep secrets which we have all seen old-time filers nurse and coddle to their breasts as a miser fondles his gold; one which he values as much as gold and one which our young modern filers would not give 15 cents for.

Brown's voice now assumed a fatherly tone as he informed the filer that he had showed him all he could and that it would undoubtedly help some. But in regard to putting in the tension, of course, he could not show him that for nothing. There, the cat was out. He next informed the filer that he would have to learn all over again. Now, that was consolation for a filer who had pounded saws for about ten years. Learn all over again, and—not for nothing. Now, the filer up to this time had been as meek as possible under the circumstances, paying strict attention to all the gems (?) of wisdom which fell from Brown's lips. He was beginning to feel small in the face of superior wisdom, which included mills, saws, tracks, carriages, carburetors and the batting average of T. Cobb, and which was handed out with the same wise look as of yore.

About this time our friend had a hunch. He remembered some time before he had shifted the emery wheel head so that saws would lead slightly out of the log. The reason for this was, a new sawyer had come and was feeding the saws pretty hard, and being afraid they would go in the headblocks, the filer had led them out, intending to place the wheel in the right position as soon as the sawyer settled down a little.

Now, don't blame the filer. He had other things to worry him, and had forgotten all about the position of the emery wheel. He hastily called Brown's attention to it and it was soon remedied. Brown admitted that it would help some but the tension was not right, of course, and the bullheads could not entirely cease. He complimented the filer in a patronizing way, in front of the boss, about the appearance of his saws, the absence of cracks, the nice swage, etc., but kept a still tongue and had a wise look about the rolling. The filer was feeling pretty good about this time, the mist of doubt and worry had cleared, and he drew Brown to talking about his own work. From his conversation the filer gathered (and not without a good reason) that Brown's secret was rolling mostly in or near the centre, and the allusions he made to the frequency with which his saws were turned over on the edges, or dished, confirmed this belief.

We know that a saw tensioned well under and out to the teeth will stand more feed and make better lumber than one rolled mostly in the centre or somewhere else. We reason that a saw will start expanding at the tooth edge and extend toward the centre, consequently the tension must be in well under the teeth to keep the tooth edge tight in the cut. If the blade is as tight, say 1½-in. back from the teeth, as it is at the teeth, a little more feed will cause heat, heat will cause expansion, and we have a tooth edge expanded, running in a slack, wavy line. We also know that a tight or flat place will not expand and is easily dished, to say nothing of the danger of a small crack starting (from being too tight under the teeth) and running clear out to the edge before the saw comes off.

The crack is sometimes so long the filer declares it is not a crack, but a break, and condemns the saw as too hard or too brittle.

These things the filer saw when the mist cleared away and left only the humid atmosphere being dished out from behind Brown's wise look. And then and there the filer decided he did not want Brown's valuable secret, even at 15c. But now they are changing saws; let us look and see if the bullhead nightmare is still with the filer. No, it is gone, and with it Brown, his wise look and his valuable secret. Tension, how many blunders are committed in thy name!

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### Machine Knives—How Many Should We Have?

A corresponden of Timber and Wood-working Machinery (London, England) writes: "This at first glance seems to be a very simple question to those with only a little experience, but in mill and works practice, as in other walks of life, we often find that a little knowledge is dangerous. There are many experienced works managers and mill foremen who would not think of attempting to answer such a broad question. Some may not care to study the matter; others, like myself, perhaps, may have been trying to solve the problem for years, only to find that the further we probe the question the more complicated it appears to be, so many practical men may refrain from giving their version chiefly on that score.

"My personal experience has all along proved to me that we do not use enough knives. I have no hesitation in saying that four knives will make a much cleaner job than two knives. They will also last longer sharp, and must necessarily utilize less power, especially in heavy work. There is also less jar on the bearings when every side of a square block has cutters on it and those cutters cutting and balanced. Take a circular saw, for instance, that is badly balanced (or centered); it will not cut so fast or clean as one that has been put on the spindle carefully and has all its teeth at work. Of course, we must draw the line somewhere. It is not a case of the more teeth the faster the feed. Oh, no; we must have throat room, and plenty of it, too.

"The same reasoning applies to cutterblocks; we cannot increase the number of knives indefinitely. There must be a limit beyond which we cannot go in practice, even although we work it out in figures and theory to a much greater extent in this manner. If two knives on a cutterblock will do good work at a given speed—say 4,000 r.p.m., with a feed of 12 feet per minute—then four knives should do equally as well with 24 feet of feed per minute, and eight knives will still continue to do the same good work at 48 feet per minute.

"No; this way of reckoning will not do. We must be content with much less than double the feed, even though we double the quantity of knives. We, as engineers, know from practical experience that we have to double the coal consumption to obtain a 10 per cent. increase on the speed or power of marine engines.

"There may not be much similarity between the engines in an ocean liner and the cutterblock of a four-cutter or planing machine; still, it serves to illustrate that theory and practice are two different items when taken separately. We must have them both, but collectively. My opinion is that we cannot have more than six knives on a cutterblock, as we are more or less restricted as to the size the block or cutterblock may be. I should say 4-inch diameter would be about the limit for planer cutterblocks, while I fancy 3-in. would be better still, as there would be a shorter space between the chipbreaker and the pressurebar. The shape of the cutterblock would either be cylindrical or hexagon, preferably the first named, for obvious reasons. The block would require to be carefully designed to allow for six knives, and the set-back or clearance for each knife. The method of attaching the cutters would also require careful consideration, to insure a speedy and rigid form of fastening the cutters in position.

"Some form of adjustment would also be essential to any block that has six knives on it; otherwise it would take too long to set up or change cutters. Any chunk of iron will not do for the proposed new cutterblock. It must be mathematically correct in design, to have all the cutting edges at the proper angle. It should be just as carefully machined, to insure a perfect balance, and arranged in such a way that the pressure of the studs or bolts such as I have endeavored to describe, fitted with thin knives made of that wonderful 'high-speed steel' (of which we read so much about lately), tempered to such a degree of toughness that would retain the cutting edges and yet could be dressed up with a special 'high-speed file,' so that grinding would be unnecessary. Then we could have some tall yarns to relate concerning 'high-speed planing.'"

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### The Engine Room the Engineer's Place

Should the operating engineer be compelled to leave the engine or boiler room while it is in operation, especially when he does his own firing? Aside from the matter of safety, can the manufacturer afford to allow the machinery in the steam plant to operate without an attendant at hand? By compelling the engineer to do outside work, a saving of a few dollars may be made, but one slight accident, which probably could have been prevented had the engineer been present, will wipe out all of the saving made by the outside work he may have done.—Power.

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### Novel Construction Used in Theatre at Colorado Springs

In the building of a theatre in Colorado Springs reinforced concrete was made use of throughout and the galleries are without posts or other supports, so that every spectator has an unobstructive view of the stage. In order to satisfy the city building authorities of the strength of this structure it was put to a very practical test. The gallery was loaded with 768 sacks of sand, each weighing 100 pounds. Two sacks were placed on each seat and four sacks on each step of the four aisles. The balcony was loaded with 1,124 similarly distributed. The city engineer took levels with a Berger level and self-reading rod, reading to hundredths of a foot, and the maximum variation was but 0.05 foot. On the next day, using the same level and rod, and taking elevation from a bench mark outside of the building, levels were run over the same points, showing a maximum deflection of 0.01 foot. After the sacks had been removed, another series of levels gave the identical results obtained in the first instance. Probably there was absolutely no deflection, since in reading to hundredths of a foot a very slight variation in the plumbing of a rod will show as much difference as one-hundredth of a foot.

# Unique Lumber Shed and Planing Mill

Mr. Wm. A. Dunn, the well-known lumber dealer, of Toronto, who sustained serious loss by fire at his yards and planing mill on Davenport Road on December 6th, has at last practically concluded arrangements for the re-erection of his planing mill and storage shed. Mr. Dunn experienced considerable difficulty with the City Council for a short time, as it was proposed at first to expropriate his property and turn it into a park, so as to prevent the possibility of fire again endangering the lives of the inmates of the Aged Men's Home and the Aged Women's Home, which are on adjoining property. Satisfactory arrangements have been made however, and are now almost concluded, whereby Mr. Dunn will be able to erect a planing mill and lumber storage shed for his plant on the old site. In order to prevent the recurrence of fire Mr. Dunn is taking every precaution which is practicable. The planing mill which is to be 50 ft. by 112 ft. will have a 14-in. brick wall on all four sides and will be two storeys high. It will be

**W. A. Dunn's New Lumber Shed, Showing Style of Construction**

furnished with a sprinkler system and equipped with the most modern planing mill machinery. The boiler house, fuel and engine rooms will be entirely separate from the mill. The planing mill will have a concrete floor. The contract for the brick work has been let to Mr. R. J. Bustard of Toronto.

The new storage shed will be the most unique feature of this plant. It is to be built by the Ruby Manufacturing Co., Kent Bldg., Toronto, and will be of sectional steel, similar in construction to the illustration accompanying this article, but of larger proportions and different outline. It is to be 49 ft. wide by 112 ft. long, 16 ft. 6 in. high. The supports of the building will be set on plates which are sunk in cement. An interesting feature of the building is that it is so constructed that it can be taken down at any time and removed to a different site. This is not Mr. Dunn's intention, however, but he considered that this type of building was the most suitable for use as a lumber storage shed. The framework of the building consists of 2-in. by 2-in. steel angles. The rafters and horizontal rails are 1¾ in. by 1¾ in. steel angles. The frame of the building is of galvanized sectional sheet steel. The manufacturers claim that the building is absolutely fire-proof, and that it will not sag or twist under any kind of natural pressure, such as wind, snow, etc. The building will be sub-divided into bins constructed of steel with 8 ft. square openings into which the lumber will be stored. The cost of this building is to be $5,000 and the cost of the planing mill $20,000. Mr. Dunn expects to commence building as soon as the weather permits and to have the wheels in his new planing mill turning by July 1st.

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### Utilization of Sawdust in Germany

Important commercial results have not been obtained in Germany up to the present time from the manufacture of briquets from sawdust, according to Consul Generals A. M. Thackara and R. P. Skinner, as stated in the Daily Consular and Trade Reports, although numerous patents have been granted for the purpose and efforts made to apply certain of the processes. The earliest and most extensive applications of the various methods are probably the following: First, the briqueting of sawdust preliminary to its being charred or distilled; second, the manufacture of fuel briquets from charred sawdust and from the dust and refuse of the charcoal industry; third, in more recent years, the briqueting of sawdust proper for fuel purposes.

The refuse from sawmills, which is about half sawdust and half slab pieces, etc., say the consul generals, must generally be disposed of at the place of production, as its comparatively low value would not permit of its economical transportation for any great distance. As much of the refuse as possible has heretofore been used as fuel for the boilers furnishing the steam for running sawmills and on tram roads for transporting logs, but the greater part has usually been burned directly without profit. It has even been found necessary, at times, to provide and maintain special ovens or furnaces in order to get rid of the waste products.

To avoid expense and to dispose of the sawdust at a possible profit, attempts have been made to use sawdust in the production of wood alcohol and charcoal. These efforts have met with comparative failure because the sawdust in Germany, coming mostly from the coniferous wood varieties, produces but little wood alcohol and pyroligneous acid, or even comparatively little tar and other distillation products, so that the resulting sawdust charcoal has but little commercial value. Technical reasons also hindered the distillation.

The report goes on to say: "The delay in the manufacture of fuel briquets from sawdust is doubtless

due to the many industrial applications of wood alcohol and charcoal in the past, together with the comparative scarcity and high prices of wood from which these products may be obtained." Another reason is that the briqueting of hard and soft or brown coal, and even peat, is so highly developed in Germany that formerly sawdust briquets could not compete favorably with other fuels, especially since the caloric strength of the sawdust briquets is comparatively low. Several patents for briqueting sawdust directly as fuel have been granted, and certain firms manufacture machines which are more or less adapted for this purpose; but, as stated before, important commercial results have as yet not been attained. The purpose of the different processes, generally, is to make the sawdust more available as fuel for the boilers of the sawmills, although it is also intended to produce briquets for household and other industrial purposes.

A briquet machine especially intended for briqueting sawdust is that known as the Arnold system press and is intended to be used in conjunction with a sawmill plant. The sawdust is drawn by air suction through heated tubes and elevators into revolving drying cylinder which si composed of an outer and an inner jacket, between which a circulation of hot steam is maintained, by which the temperature of the sawdust is raised to approximately 40 degrees centigrade or 104 degrees Fahrenheit. This temperature, besides reducing the original moisture contents of the sawdust from about thirty-five per cent. to about twelve per cent., also partly dissolves the resin and tar products, which act as a binder after the sawdust has been transmitted to the press proper.

The heated sawdust is carried by means of rotating shovels in the drying cylinders into elevators whict raise it to a secondary drying apparatus in the form of a heated box placed over the press. This is open at the top and is heated by means of steam circulation in the double bottom of the drier. The remaining moisture is here evaporated and the sawdust is forced through a wide funnel, also heated, into the mouth of the briquet press. The latter is a so-called joggle-joint machine, the lever of which makes twenty-four strokes per minute and at each stroke carries enough sawdust to make one briquet. The briquets are pressed out at the end of the mold into a metal cooling trough from which they are transported to the storage rooms.

Another briqueting system which is primarily intended and is being used for briqueting iron ores and metal waste of foundries and machine shops without binding material, is that of A. Ronay. This system also provides for a preliminary drying of the sawdust. Several patents are also extant for briqueting sawdust with the addition of special binding materials but as far as known no technical application of these patents has as yet been made.

### Steel Belting

After being abandoned for the last few years, endless steel belts are coming into use in Germany. According to Engineer Silberberg, the belts are very thin steel bands from 0.04 to 0.36 inch thick, and on the other hand they are very broad, from 8 to 16 inches. Such bands are made by hot rolling, then a cold drawing of the metal and special tempering, using best Swedish steel. The joint is made by the new Eloesser method, using a coupling plate which is welded to the band in connection with screw joints. It is stated that an adhesive material is applied to the pulley side of the steel belt so as to prevent slipping.

## RECENT INVENTIONS

### Window Screen

G. W. Stein, 842 West Jackson Boulevard, Chicago, Ill. This screen will permit the window sash to be raised during a rainstorm without danger of rain beating in. It partakes of the nature of a blind so as to keep out the glaring sunlight, but which will, nevertheless, permit air to pass freely as with the ordinary screen. Further, the invention provides a combined screen and fly escape.

Saw Gumming Machine.—L. Goad, jr., Box 261, Arcata, Cal. The object here is to provide a machine which has feed fingers which automatically advance the saw top step by step, so that the emery wheel may be applied between all the teeth respectively. Means provide for holding the saw in place relatively to the machine by raising and lowering the emery wheel, and for adjusting the feed fingers to meet all conditions.

### Device Invented by Which Operator Flashed Letters

William E. Shaw, an electrician, Lynn, Mass., has invented an electrical device by which an operator at a keyboard can flash letters and numerals and make himself readily understood at the receiving end of the wire, although he may be miles away. It is a telephone for deaf mutes. Mr. Shaw has installed one of these telephones in his home, his wife being a deaf mute, and it has worked so well that he has applied for a patent. Thirty-six letters and figures appear on the keyboard and the same number on the receiving board.

### Timber Revenue

The penalties imposed by the timber branch of the Department of Lands, British Columbia, for the year 1912 amounted to $13,199. The total timber branch revenue for the province for 1911 amounted to $2,297,452.25.

### Money From the Stumps

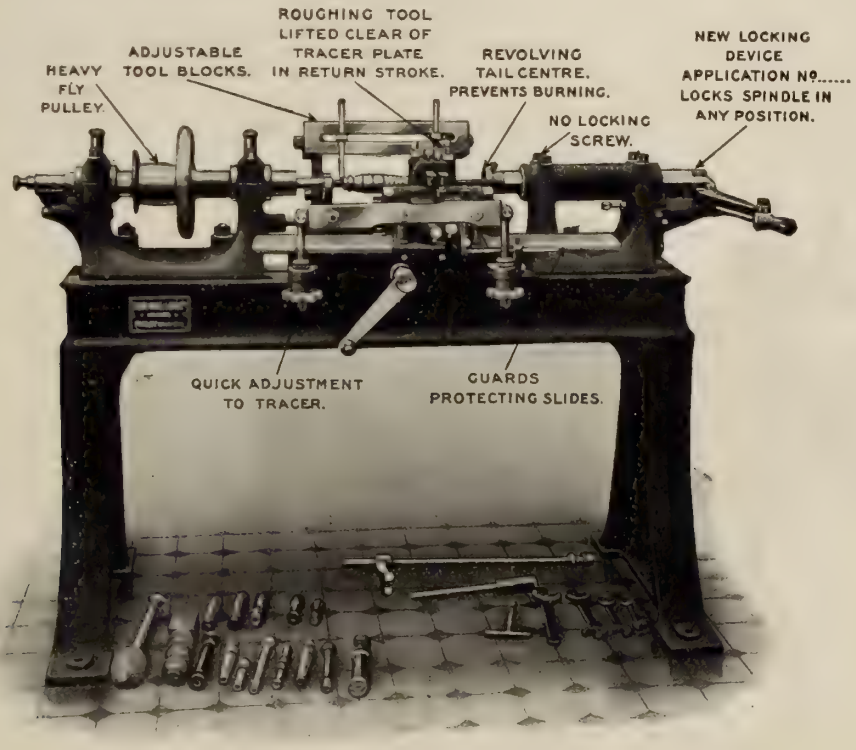
The stumps of the Norway pine left on the fields years ago in the trail of the woodsman are now being turned to account by many establishments in Michigan and Wisconsin. These stumps are rich in turpentine and resin, and the process utilized is what is known as destructive distillation, which is quite simple and interesting owing principally to the great variety of material which is secured from this refuse of the fields. The stumps are cut into blocks and loaded on iron cars of cage construction and fired in a retort. The heat drives out the moisture and oil and opens up the fibre of the wood. The water comes off first, followed by the resin, then turpentine, succeeded by a mixture of tar and turpentine, and finally the flow consists of pure tar. The average yield is 26 gallons of turpentine and 57 gallons of tar from a cord of wood weighing about 3,333 pounds. The residue consists of 40 bushels of soft charcoal.

From this material there are obtained the following products: Sheep dip, tree spray, and disinfectant. shingle stain, wood filler, embalming fluid, furniture polish, face lotion, paint and pigments.

# What the Machinery Men are Doing

### An Automatic Lathe with Some Special Features

The illustration shows a new variety of turning lathe just brought out for turning of handles, chair balusters, brush stocks and similar articles. It varies from the ordinary finishing machine in so far that the roughing is done by means of a longitudinal slide passing across the front of the machine. This slide in turn being connected to the tool slide situated at the back of the machine which carries the shaped knife or finishing cutter. The said tool slide being arranged to operate in conjunction with the roughing slide, and one-and-a-half turns of the handle is therefore sufficient to rough and finish an ordinary turning. The machine is specially adapted for all classes of general work, and there are three special features on this machine well worth noting.




1—Easy adjustment of the tracerplate which requires no screw key, and by adjusting the tracerplate up or down, more or less is left for the finishing tools to cut. The roughing tools, immediately they finish cutting are lifted clear of the tracerplate and remain clear of the tracerplace on the return stroke, only coming into action again when a fresh piece of wood has been put in the machine.

2—The running headstock is the White & Sons' well-known design and has a heavy fly pulley, maintaining a steady speed during the turning operation.

3—Another very important feature on the machine is their automatic locking device for the tail or slide spindle, Patent Application No. 2231/12.

In the ordinary type of lathe after the lever has been brought up it is necessary to lock the spindle by means of a small locking screw on the top of the head. With this new patent device, however, this is unnecessary, as the one motion for bringing up the lever at the same time locks the spindle in any desired place, and by this means an operation is saved.

For further particulars write White & Sons, Ltd., Paisley, Scotland.

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### Veneer Presses

It is not necessary now, as it was in former years, to import the presses that are used by furniture manufacturers and veneer makers.

A full line of hydraulic and veneer presses are built by William R. Perrin & Company, Limited, Toronto. This company has at the present time their presses in use by the leading piano and furniture manufacturers in Canada, many having been in operation for years.

These veneer presses are made by them, to meet all requirements. The press which seems to be in greatest demand is the 100-ton Hydraulic Press, size 72 x 30. Full information relative to it will be given on application, and references to the present users.

As these presses are sold at a less price in Canada than they can be imported for, and that they are fully guaranteed, there can be no reason for further importing of such machines.

They are not only made in Canada, but made better in Canada than elsewhere.

---

### Of Interest to Carpenters and Builders

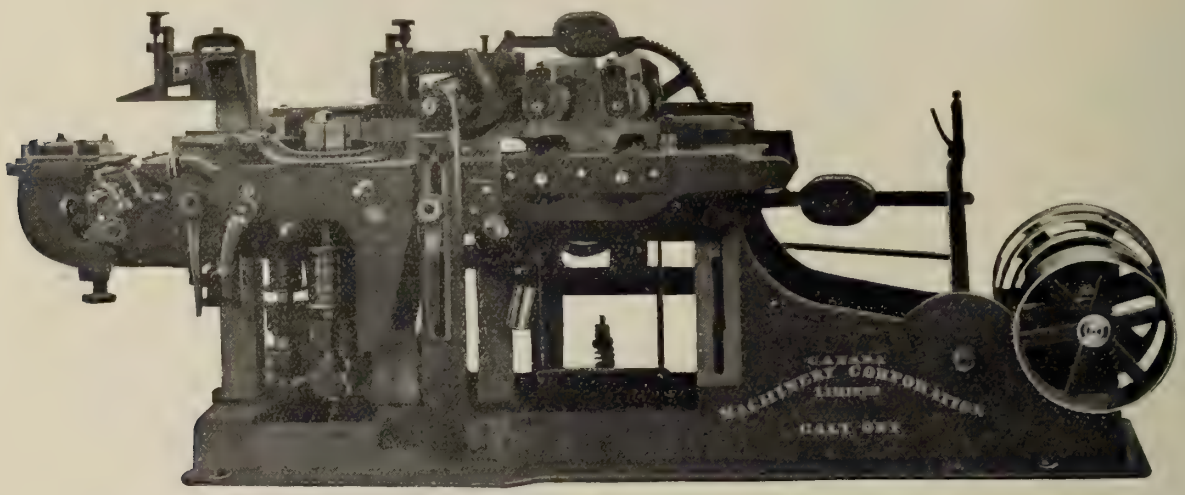
A machine that is attracting a great deal of attention among carpenters and builders is the "Elliott Portable Woodworker," a tool especially designed for outside construction work. This machine is for ripping, cross-cutting, boring, mitering mouldings and emery-grinding. Also it will house stair strings, and dado shelving, door and window frames, etc. The

saw is capable of ripping 2 by 4's and joists, in fact as its name implies, it is a universal woodworker. The different adjustments can be quickly made, and the machine requires no expert attention. There are a number of these machines in use which are giving entire satisfaction. No carpenter or builder can afford to be without one, as it will do the work of six men and the cost of power does not exceed $1.00 per month. For further particulars write The Elliott Woodworker Co., who are now arranging to demonstrate this machine in different parts of Canada. Their address is The Elliott Woodworker Co., corner of Bathurst and College streets, Toronto.

## Easily Adjusted Molder

Among the many machines of improved design which the Canada Machinery Corporation, Limited, have developed, their No. 315, 6 in. Moulder is well worthy of description. This machine is one that should be of especial interest of those who require a machine capable of producing both fine and coarse work at maximum speeds.

On referring to the cut, the reader will be impressed with several of its advantageous features of



construction, notable among which are the strong, rigid frames allowing for long belts.

The bed is rigidly supported close to the bottom head and is raised and lowered by means of screws, mounted on ball bearings, insuring ease of operation. All parts and adjustments over the bed in the way of pressure feet, chipbreaker, etc., can be instantly thrown out of the way, giving the operator the greatest facilities for setting and adjusting the cutters.

The side heads are conatined in heavy yokes supported in guide ways at their upper end, and at the lower end bearing against a cross slide rigidly cast with the bed. The boxes are of the regular self-oiling type.

The bronze step bearing at the bottom, which receives the weight of the spindles, runs in a bath of oil, and a screw furnishes a means of adjustment to take up end play; they can be set to any angle and move vertically and laterally without changing the angle.

The feed works, consisting of four rolls driven by wide faced gears of large size, can be arranged for four rates of feet viz: 18, 26, 34 and 42 ft. per minute, giving the machine a wide range of service, which in conjunction with its heavy construction, recommends it to those desiring a machine that will stand the test of hard service.

# COAST TO COAST

### Big Cut of Timber

A total of over one billion feet of timber was cut on Provincial lands during 1911, netting the sum of $444,333 in stumpage, royalties and taxes, in addition to revenues from timber licenses and rentals. This does not include timber cut in the railway belt controlled by the Dominion Government. Of this 45,000,000 feet of lumber was shipped into the United States. The amount of timber cut during last year was 146,000,000 feet greater than in the previous year, when it totalled 936,000,000 feet.

### Youth's Hand Trapped in Woodworking Machine—

John Potter, a youth employed in the door factory of the shops at East Toronto had the four fingers of his left hand crushed off in a "jointer" machine there.

The unfortunate lad was attended by Dr. W. R. Walters and was then taken to his home, 337 Main street, north of the city limits.

### Big Industry for Amherst

The Nova Scotia Carriage & Motor Car Company is Amherst's latest industry. It has been incorporated with a capital of $2,000,000, consisting of $750,000 preferred stock, $1,260,000 common stock, and an authorized bond issue of $250,000.

A large portion of the stock will be reserved in the treasury for future development, but all the stock and bonds totalling $600,000, for the present needs of the concern has already been underwritten. This amount will be spent on the new plant and equipment in Amherst.

This new concern takes over the business of the Nova Scotia Carriage Company at Kentville, but the plant there will be kept in operation until this fall, pending the completion of the new building in Amherst.

### Forestry Department Plans Peace River Patrol

The new government is recognizing the need of an advanced forest preservation policy, and is placing

in the estimates a greatly increased sum for this work. The department at the present time is planning its summer work, and more rangers and forest experts than ever will be sent out to patrol the Canadian forests. A great army of men will be sent into the new districts in the west, which the being opened up for settlement. The department is planning to patrol the Peace River trails and the country north of Battleford and Prince Albert, into which settlers are pouring. A number of rangers will be sent along the line of the new Hudson Bay railroad, while the route from Winnipeg north to the Bay will also be patrolled. The energy of the department will be largely devoted this summer to organizing the new forest reserve on the eastern slope of the Rockies, consisting of thirteen million acres, which is one of the largest and finest reserves on the continent.

### Planing Mill for Midland

The by-law voted on by the property holders of Midland, Ont., to loan Messrs. Benson and Bray $25,000 to erect a planing factory met with very little opposition, only twenty-two votes being polled against it.

A new sash and door factory will be built in Edmonton, Alta.

The Hilts Bros. Lumber Company, Limited, is incorporated with head office at Calgary, and capital of $10,000.

The capital stock of the Malcolm & Souter Furniture Company of Hamilton, Ont., has been increased from $75,000 to $150,000.

The stock of the Bowman-Sine Lumber Company, Limited, of Edmonton, Alta., has been increased from $100,000 to the sum of $300,000.

Fire, which occurred at the Woolnough Show Case factory, 15 Fisher street, Toronto, did $400 damage to the building and $300 damage to the contents, covered by insurance. The factory is owned by John W. Woolnough, 220 Brock avenue.

The Mann lumber and cheese box factory, Peterborough, Ont., was badly burnt recently. The loss to stock and machinery being about $6,000.

The capital stock of the Bowman-Sine Lumber Company, of Edmonton, Alta., has been increased from $300,000 to the sum of $500,000.

### Experiment Forest Building

An interesting experiment in forest building is about to be made in New York state. The scene of operations will be Letchworth Park at Portage, in the upper valley of the Genesee. This tract contains a thousand acres and was deeded to the people of the state by the late W. P. Letchworth, and will be under the control of the American Historic and Scenic Preservation Society.

The purpose of the society is to transform this tract into the finest arboretum of its kind in the world. Forest trees of all varieties will be planted, with a view to ascertaining which species are best adapted to such conditions as exist in the valley of the Genesee. Not less than one acre will be planted to each variety chosen, and a careful record will be kept of the growth and commercial value of all species. There are in Letchworth Park to-day some five hundred acres covered with native trees. The remainder of the land will be planted to conifers and hardwoods from Europe, Asia and North America, under the general management of a competent nurseryman, who will be employed as soon as the right man can be selected.

The purpose of the enterprise, it is explained, is to secure and disseminate all possible information concerning forestry, so as to create a sentiment in favor of commercial forestry by the owners of lands. It is expected that the arboretum will prove of enormous value to the student of forestry, and the society will seek the advice and counsel of lumbermen, educators and all others whose advice can be of use. The results, of course, cannot be seen to any great extent for some years to come.

# Why Electric Wires Are Covered

If you ask the ordinary individual why the electric light wires are always covered, he will mutter something about "insulation" and hurry away on a very important errand.

To insulate is to separate, to isolate an object so it can have no communication with any other part or body. Therefore, a wire is said to be insulated when it is covered or wrapped with material to prevent the leakage of the electric current. Electricity is always in a hurry; it is always seeking a short cut to complete its cycle. It would not travel miles and miles through small wires, stopping here to light a house, there to illuminate a street or a factory, again to turn the wheels of a loaded car, or to drive countless machines, if it could help it. It would be only too pleased to jump off the wire if it could and avoid this enoromus work by hurrying back through the earth, which is a good conductor.

Electricity lights our homes, drives our cars, turns our wheels, cooks our food, and does a thousand other tasks. This is work of the hardest kind, and the electricians in charge have to be continually on the watch to see that the rascal does this work as he passes along and does not sneak out and take a short cut home.

Dry air is the best insulating material, next rank glass, mica, porcelain, rubber, lava, oils and fats, and cloth in their order. The wires used about ordinary buildings are insulated with rubber, oils and dry cloth, this combination being lasting, flexible and very durable. Some of the smaller wires, designed to carry weak charges of electricity, such as those for electric door bells, burglar alarms, etc., are merely insulated with a covering of closely woven linen or silk threads.

One of the most interesting sights at the mammoth plant of the General Electric Company, at Schenectady, N. Y., is the manufacture of insulated wire. Several huge buildings are devoted to this important part of the electric al industry. The smaller wires are merely covered with a strip of paraffin paper over which is woven a close-fitting jacket of linen or silk thread. This wire is usually employed in dry

places for weak charges and such a thin insulation is ample protection.

For the larger sizes, usually a number of small wires twisted into a cable, ranging all the way from the size of a lead pencil to as big as a man's upper arm, more protection is necessary. In most cases the wire or cable is first passed through a peculiar machine which winds a strip of paraffin or waxed paper its entire length. From this machine it passes to another which covers it with sheets of rubber composition. This would effectually insulate it, but this insulation has to be protected from wear and tear. First it needs a strong covering of closely woven linen cord. This is put on by a special loom, which weaves a tight-fitting cover over the wire. If it is a small cable or merely a heavy wire it is then dipped into some insulating solution and dried, being then ready for use. The larger wires are "armored" either with a lead sheath or a cover of sheet steel cut into strips and woven over the entire length of the wire by a large knitting machine which covers the wire with this protective covering at a surprising rate. The lead armor is spun on while in a molten condition much the same way as a spider spins her web.

A horizontal section of a large electrical cable, such as is used to transmit heavy currents of electricity, would show an inner core of twisted copper wires which carries the current. Around this appear alternate layers of insulation, usually consisting of waxed paper, rubber composition, linen threads impregnated with oils and a final covering of lead. This is the most effective insulation known to the industry. Not only is the cable flexible and easily handled, but the electric current is absolutely prevented from jumping off the wires. The lead armor prevents the insulating material from abrasion and injury and keeps out the moisture.

Glass, porcelain, lava, mica, etc., not being flexible to any great extent, are used only where the work is adapted to these peculiarities. Glass and porcelain can be readily mounted into any form or shape, and, therefore, most of the common insulatiors, designed to keep bare wires away from conductive bodies, are made of these materials. It is good practice to suspend the electric wires on poles or towers where they are effectively and perfectly insulated by the surrounding dry air, except for the contact points where the wires are suspended. At these points glass and porcelain insulators are used with the best of results.

With all this work to insulate a small wire it is wonderful that it can be sold so cheaply. The low cost of insulating wire is entirely due to the fact that most of all the insulating work is now done by high speed machinery. The bare wire is fed into a machine from a large reel and it emerges from the other side covered with the insulating material ready for shipment, and the workmanship is far better than the most skillful hands could do it.

### Portable Cement Houses

A cement house put together with a screw-driver is a novelty which has been recently introduced. The system is designed for houses of a more or less temporary character, or for houses that are liable to be moved from point to point, such as a temporary workshop or a private garage. The system consists of blocks of concrete in which has been buried a wire spiral with an opening in the cement to take a small bolt. Thest slabs are bolted in position over a metal or wooden frame, and when it is desired to move the structure the bolts may be readily removed with a screw-driver, and the whole structure transported, without any damage, to any desired point.

### Hardwood Door Panels

Generally the hardwood door manufacturer, that is, the manufacturer who devotes his energies merely to stock sizes and patterns in hardwood doors, producing them in large quantities, makes his own panels as well as does his own frame veneering. It is doubtful, therefore, if it would be practical for the panel manufacturer to develop a trade in door panels with the door manufacturer proper. There may, however, be a few instances where there is a chance to do business of this kind. Among door manufacturers who make the majority of their own panels there may also be opportunities to supply panels faced with mahogany and other fine wood, and it is worth a little investigation on the part of panel manufacturers to see whether or not some business in door panels can be secured, as well as selling veneer to door manufacturers.

Then, there is another point, which really constitutes the subject matter of this discourse, and that is the multitude of doors made by the planing mills all over the country. Usually the planing mill man makes and veneers his own door frames and panels. Often, however, he does not make the panels from preference, but through necessity. Therefore, the chances are that panel manufacturers, especially the veneer manufacturers who operate panel plants in addition to their veneer cutting business, could develop trade with the planing mills in door panels. The argument in favor of this is the fact that the panel man is usually in a position to make panels of this kind cheaper than the planing mill man could make them, and perhaps put them up in a better shape.

Surely if the panel manufacturer can supply panels to the furniture manufacturer, he should be in a position to supply panels economically to the door manufacturer. Door panels are comparatively simple and easy to make and should work in well at the panel factory. Moreover, they run in near enough standard sizes to enable one to make and carry them in stock.

Even though the planing mill man operates a fairly good glue room equipment, he is seldom prepared to make a multitude of simple panels at as low a cost for operation as the regular panel manufacturer. His work is on a different order, one in which it requires more time and pains in doing the work and in which he is not justified in using the hydraulic presses and other modern appliances which are an essential part of a well equipped panel manufacturing plant.

It will probably take some time and considerable missionary work to develop the trade, but after carefully reviewing the situation, one cannot help but see that it is an opening which requires attention, and it may be developed to the advantage of both the planing mill man and the panel manufacturer.

### Sawing Season Opening in B. C. Interior

A Nelson, B. C. despatch says:—lumber mills in Kootenay are commencing operations for the summer season. The Otis Staples Lumber Company's mill at Wycliffe has commenced operations and the Baker Lumber Company at Waldo, the Adolph Lumber Company at Baynes Lake, the Summit Lake Lumber

# OPPORTUNITIES

**Advertisements inserted on this page for "Positions Vacant" or "Positions Wanted" twenty-five cents per insertion.**

## Employers !

If you want to add to the efficiency of your staff, get in close touch with woodworkers through these columns,

The best men in the trade in Canada regularly read this journal. The man you want is among them.

---

Wanted ; Immediately, Sticker-hand, capable of getting out stock for furniture factory ; must be first-class and experienced. Apply, stating experience, wages. Thompson Furniture Co , Ltd., Belleville, Ont.

---

Wanted a good trim Sawyer and good Cabinet Makers. Will pay good wages to right men. Kensington Furniture Co., Goderich, Ont.

---

Company at Summit Lake, the East Kootenay Lumber Company, the Malcolm McInnis Lumber Company at Crow's Nest and the Crow's Nest Pass Lumseason's cut.

Following the promotion of J. R. Martin, assistant timber inspector stationed at Nelson to the Fort George district, Mr. A. Carney has been placed in charge with an assistant, A. M. Black, of the district bounded by the Okanagan watershed, the main line, Golden, the Windermere Valley, the Crow's Nest Pass and the international boundary line on the south. In this district there are approximately 75 mills. Mr. Carney reports that the dumping of American lumber has made the prospects for the coming season dull. "At the lowest calculation, 300,000,000 feet of lumber has been thrown on the prairie market by United States manufacturers during the past eleven months. This is very near the total surplus, that is the surplus production of the mills above the local consumption.

---

### Adapt the Man to the Work

We all know there are some men that can make a success of any kind of work, and others again, although good men, cannot adapt themselves to all classes of work. These are the men you will have to move around until you find the job they can successfully handle, so in this way, you have to dispose of very few men, when you are specializing your work. I do not think it good supervision on the part of a foreman to say that a man should quit that his special job is going to be tied up.

I think a good policy is, that after a man has been on a certain class of work for a reasonable length of time, and has done it successfully and is looking for something better, he should be given a change and a chance to show his ability, and in doing this, you so on have men that can take hold of any job at any time required, and your steady men soon become good and efficient men. I think sometimes a good man can be spoiled by keeping him on a job too long, as we all know doing the same thing over and over again soon becomes monotonous and he loses interest in his work.—Mr. Galloway at the Western Canada Railway Club.

---

The sawmill of Mr. M. Vezina, Normanville avenue, Montreal, has been destroyed by fire.

## Wanted:--

**Bench Hands**
**Sticker Man**
**Band Re Sawyer**

In a live Ontario town

Only first-class men need apply for these positions. Good money for right men.

**Box 2**

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## Furniture Factory, could emyloy 50 to 75 men

I am looking for a location; first reasonable offer from live, up-to-date town will be accepted; splendid opportunity to boom your town; write me.

**Henry Lewis**
**580 Elliott Square, BUFFALO, N. Y.**

---

## We have no Planing Mill or Sash and Door Factory in our town. —

# Waterloo

It's a good prosperous town of 5000 inhabitants too; right in the centre of the wealthiest county of Ontario.

Lots of building going on all over town and at present we bring all the necessary supplies in from out of town.

We can offer inducements to any man who will put up a plant here.

Drop us a line so that we can tell you about our town and its possibilities.

## Secretary Board of Trade

**Waterloo, Ont.**

LEADING VENEER OF UNITED STATES
MANUFACTURERS
RECOMMENDED BY CANADIAN WOODWORKER

*National Veneer & Lumber Co.*

Manufacturers of

**Quartered Oak Veneer**

West Michigan Street and Belt Railroad,

INDIANAPOLIS, IND.

**Cincinnati Veneer Company**

Sawed and Sliced Quartered Oak Veneers
Rotary Cut.
Poplar, Gum, Maple Cross-banding.
Oak and Walnut Faces and Backs.
Veneer Sawed Thin Lumber.
Sliced Poplar 1/8 to 5/16 in.

CINCINNATI, OHIO, U. S. A.

**Ohio Veneer Company**

Manufacturers of
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Office and Mills:
**2624 to 2634 Coleraine Ave.**
CINCINNATI, OHIO

We Have Large Quantities
**Plain Veneers, Ready to Ship**

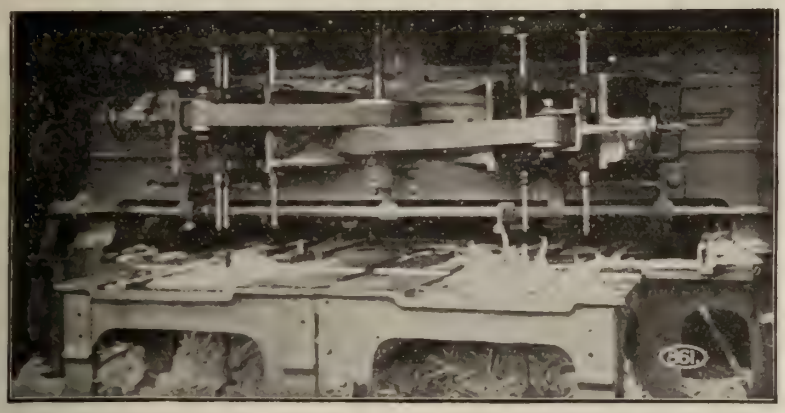
OAK
BIRCH
POPLAR
GUM
STANDARD THICKNESSES

**Walter Clark Veneer Co.**
Grand Rapids - Mich.

Did you ever Stop and Figure Out the business there is in Canada for the Veneer Manufacturer ?

There are in Canada approximately 985 Furniture Manufacturers and only two Canadian Veneer Makers. The business has to go to the United States. Do you get your share ?

The Canadian Woodworker has 1100 copies of its whole circulation going into the furniture factories of Canada. Our rates are reasonable. May we give you further information?



# Renold Patent Steel Driving Chains

**OVERCOME TRANSMISSION TROUBLES**

Upper illustration shows leather belts driving an adzing and boring machine. Trouble was experienced with the belts.

The lower cut shows the same machine equipped with RENOLD CHAINS which not only overcame the trouble but increased the production over 30% and resulted in the users equipping in a similar manner all their machines

**Write for catalog and particulars**

## Jones & Glassco

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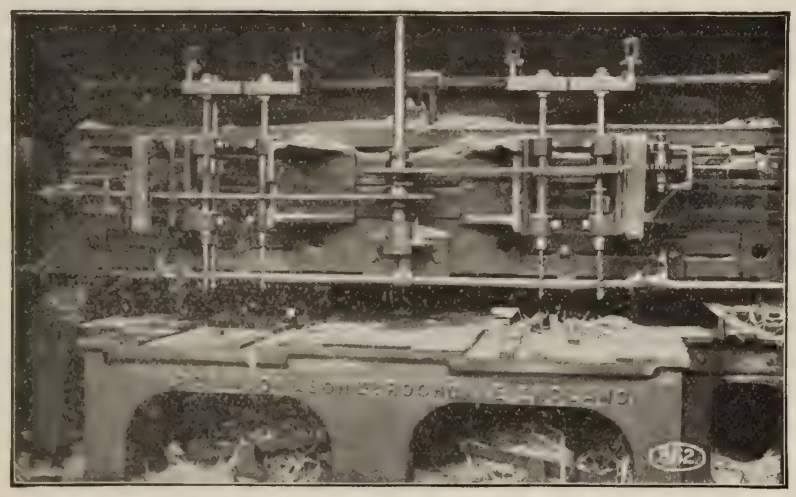

# Looking for a Location?

# KINDERSLEY

The principal town in Western Saskatchewan, centre of an agricultural territory 6,000 square miles in extent, a divisional point of the C. N. R. midway between Saskatoon and Calgary, and the assured centre of future railroad development.

## Offers the Ideal Location

**for your**

## Woodworking Plant

If you want to start with a moderate investment and work into a big business with the development of a new country.

Write for a complete report, at once, to

**J. D. McLeod, Secretary**

**Board of Trade, KINDERSLEY, Sask.**

# The Elliot Woodworker

## for Carpenters and Builders

Patented in Canada, November 1910
United States Patent Pending

THE cut shows the Elliot Woodworker set for ripping.

The bed of the machine swings on a quadrant fastened to the bench, enabling the machine to be set for cross-cutting, or at any angle for mitering, routing stairs or similar work.

The carriage slides on the bed and is drawn forward by hand, the material to be worked remaining stationary on the bench,

The saw-shaft can be raised or lowered so that the router or saw can cut to any depth desired.

Can be carried from room to room or outdoors as easily as a bench.

On the reverse end of the shaft can be placed an emery wheel for grinding tools, or a bit for dowelling or mortising.

A special feature of the machine is that by replacing the saw with a dado head it will rout out stair stringers with any desired wedge room or cut 1¾ inches deep in one cutting.

With each machine is supplied one ⅞ and one ½ inch dado head, one cross-cut and one rip saw, one boring chuck and ⅜ inch bit for dowelling, and one emery wheel.

Over 50 Elliot Woodworkers were sold in Toronto in 1911 to carpenters and builders, whose names can be given as references.

For particulars, prices and terms apply to

**The Elliot Woodworker Co.,** South-west cor. Bathurst and College Sts. **Toronto**

Phone College 1044—Long Distance

# "The Best Joints Ever Obtained in All My Experience"

**was the statement made on April 12th by the Superintendent of one of the largest Canadian furniture factories to his general manager.**

The advisability of ordering a second machine for one of their other factories was under discussion. He continued :"There is no question about it. You cannot obtain as near perfect results in any other way. Why look at those six foot maple tops. Those joints are a **marvel, almost beyond belief,** then think of the saving in the Finishing Department, no doctoring of joints."

## The Linderman Automatic Dovetail Glue Jointer

effects a saving in any woodworking Factory which cannot be obtained by any other method. This saving is so large that it fully justifies its immediate installation, for beyond the known figurable saving there is a decided noticeable advantage of the quick movement of stock from the cutting up department to the finishing room, which is appreciated by all progressive manufacturers who have analyzed and thoroughly understand where the loss of profits is greatest. MACHINE LABOR as AGAINST HAND labor has always yielded vast returns. Tell us your conditions and we will tell you what you can save.

## CANADIAN LINDERMAN COMPANY, LIMITED

**Works at MUSKEGON, MICH., WOODSTOCK, ONT.**

# BUYER'S DIRECTORY

**AUTOMATIC DOVETAIL GLUE JOINTER**
Canadian Linderman Machine Co., Ltd., Woodstock, Ont.

**BABBITT METALS.**
Shurly Dietrich Co., Ltd., Galt, Ont.
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Thos. White & Sons, Paisley, Scotland.
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Mussens, Ltd., Montreal.
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Fay & Egan Co., Cincinnati, Ohio.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

**BAND SAWS.**
Canada Machinery Corporation, Ltd., Galt, Ont.
Shurly Dietrich Co., Ltd., Galt, Ont.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
R. H. Smith Co., Ltd., St. Catharines, Ont.

**BAND SAW MACHINERY.**
Canada Machinery Corporation, Ltd., Galt, Ont.
Mussens, Ltd., Montreal.
Canada Machinery Agency, Montreal.
Berlin Machine Works, Ltd., Hamilton, Ont.
Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

**BAND SAW MILLS.**
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Canada Machinery Agency, Monteral.
Mussens, Ltd., Montreal.
Fay & Egan Co., Cincinnati, O.

**BAND SAW STRETCHERS.**
Fay & Egan Co., Cincinnati, O.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

**BENDING MACHINES.**
Mussens, Ltd., Montreal.
Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.

**BELTING.**
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Sadler & Haworth, Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
H. W. Petrie, Ltd., Toronto.

**BELTS (Endless).**
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Sadler & Haworth, Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
H. W. Petrie, Ltd., Toronto.

**BELT CEMENT.**
Sadler & Haworth, Montreal.

**BELT FASTENERS.**
Sadler & Haworth, Montreal.

**BELT DRESSING.**
Sadler & Haworth, Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt.

**BLOWERS.**
Mussens, Ltd., Montreal.
Sheldons, Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

**BLOW PIPING.**
Sheldons, Ltd., Galt, Ont.

**BOILERS.**
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

**BORING MACHINES.**
Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
J. M. Nash, Milwaukee, Wis.
Valley City Machine Works, Grand Rapids, Mich.
H. W. Petrie, Ltd., Toronto.

**BOX MAKERS' MACHINERY.**
Canada Machinery Corporation, Ltd., Galt, Ont.
Canadian Linderman Co., Ltd.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Baxter D. Whitney & Son, Winchendon, Mass.

**BROKEN CASTINGS BRAZED — MACHINIST AND DIE MAKER.**
W. H. Dunn, 1892 Queen St. West, Toronto

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**CARS (transfer).**
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**CARVING MACHINES.**
Canada Machinery Corporation, Ltd., Galt, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler Ont.
Valley City Machien Works, Grand Rapids, Mich.

**CHISELS.**
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.

**CIRCULAR SAW MILLS.**
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

**CHAINS (Silent).**
Jones & Glassco, Montreal.

**CLAMPS (Chain, Carpenter, Cabinet, Pattern Makers, Bench, Mitre, Piling, Mounted and Rotary Wheel).**
Black Bros. Machinery Co., Mindota, Ill.
J. A. Fay & Egan Co., Cincinnati, O.

**CLAMPS (Saw).**
Shurly Dietrich Co., Ltd., Galt, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

**CLUTCHES.**
J. A. Fay & Egan Co., Cincinnati, O.

**COLUMN CLAMPS.**
Black Bros. Machinery Co., Mendota, Ill.

**COLUMN MACHINERY.**
J. A. Fay & Egan Co., Cincinnati, O.
C. Mattison Machine Works, Beloit, Wis.

**CORE BOX MACHINES.**
J. A. Fay & Egan Co., Cincinnati, O.
E. & B. Holmes Machinery Co., Buffalo, N.Y.

**CUT-OFF SAWS.**
Canada Machinery Corporation, Ltd., Galt, Ont.
Shurly Dietrich Co., Ltd., Galt, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Simonds Canada Saw Co., Montreal.
R. H. Smith C., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

**CUTTER HEADS.**
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Samuel J. Shimer & Sons, Mitton, Pa.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

**DADO HEADS.**
C. Mattison Machine Works, Beloit, Wis.
Elliot, Bathurst and College Sts., Toronto.

**DIEMAKERS & MACHINISTS**
W. H. Dunne, Toronto.

**DISK GRINDERS.**
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.

**DOGS (Saw Mill).**
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.

**DOVETAILING MACHINES.**
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Canadian Linderman Machine Co. Ltd., Woodstock, Ont.
J. A. Fay & Egan Co., Cincinnati, O.

**DOWEL MACHINES.**
Thos. White & Sons, Paisley, Scotland.
Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Valley City Machine Works, Grand Rapids, Mich.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

**DRILLS (Automatic Hand).**
North Bros. Mfg. Co., Philadelphia, Pa.

**DRILLS (Reciprocating).**
North Bros. Mfg. Co., Philadelphia, Pa.

**DRILLS (Breast).**
North Bros. Mfg. Co., Philadelphia, Pa.

**DRYING MACHINERY.**
Canada Machinery Agency, Montreal.
Sheldons, Ltd., Galt, Ont.
Morton Dry Kiln Co., Chicago, Ill.

**DRY KILNS.**
Canada Machinery Agency, Montreal.
Sheldons, Ltd., Galt, Ont.
Morton Dry Kiln Company, Chicago, Ill.

**DUST COLLECTORS.**
Canada Machinery Agency, Montreal.
Sheldons, Ltd., Galt, Ont.

**DUST SEPARATORS.**
Canada Machinery Agency, Montreal.
Sheldons, Ltd., Galt, Ont.

**DYNAMOS.**
Canada Machinery Agency, Montreal.

**EDGERS (Gang).**
Berlin Machinery Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
Simonds Canada Saw Co., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Fisher, Sander Co., Berlin, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie. Ltd., Toronto.

**EDGERS (Single Saw).**
Berlin Machine Works, Ltd., Hamilton. Ont.
Canada Machinery Agency, Montreal.
Simonds Canada Saw Co., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.

**END MATCHING MACHINE.**
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.

Mussens, Ltd., Montreal.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

ENGINES (Steam).
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

EXHAUST FANS.
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
Sheldons, Ltd., Galt, Ont.

FLOORING MACHINES.
Berlin Machine Works, Ltd., Hamilton.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler.
Mussens, Ltd., Montreal.
Canada Machinery Corporation, Ltd., Galt, Ont.
Baxter D. Whitney & Son, Winchendon, Mass.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

FLINT.
Wausau Quartz Co., Wausau.

FLUTING HEADS.
J. A. Fay & Egan Co. ,Cincinatti, O.

GAINING MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinatti, O.
C. Mattison Machine Works, Beliot, Wis.
Mussens, Ltd., Montreal..
Canada Machinery Corporation, Ltd., Galt, Ont.
H. W. Petrie Co., Ltd., Toronto.

GAS ENGINES.
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
H. W. Petrie, Ltd., Toronto.

GAUGES (Saw).
Shurly Dietrich Co., Ltd., Galt, Ont.
Simonds Canada Saw Co., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

GEAR HOBBING MACHINE.
Reynolds Machine Co., Moline, Ill.

GLUE CLAMPS.
Black Bros. Machinery Co., Mendota, Ill.
H. W. Petrie, Ltd., Toronto.

GLUE HEATERS.
J. A. Fay & Egan Co., Cincinnati, O.

GLUE JOINTERS
Canada Machinery Corporation, Ltd., Galt, Ont.
Canadian Linderman Co., Ltd.

GLUE SPREADERS.
J. A. Fay & Egan Co., Cincinnati, O.

GRINDERS (Cutter).
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Falls Machine Co., Sheboygan Falls, Wis.

GRINDERS (Knife, etc.).
E. C. Atkins & Co., Hamilton, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
T. A. J. Burton Saw Co., Ltd., Vancouver, B.C.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

GRINDERS (Tool).
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Valley City Machine Works, Grand Rapids, Mich.

GROOVING HEADS.
E. C. Atkins & Co., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
C. Mattison Machine Works, Beloit, Wis.
Samuel J. Shimer & Sons, Milton, Pa.
Canada Machinery Corporation, Ltd., Galt, Ont.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

HAND PROTECTORS.
J. A. Fay & Egan Co., Cincinnati, O.
Jones Safety Device Co., Hamilton, Ont.

HAND SCREWS.
Black Bros. Machinery Co., Mendota, Ill.
J. A. Fay & Egan Co., Cincinnati, O.

HEATING APPARATUS.
Sheldons, Ltd., Galt, Ont.

HANDLE AND SPOKE MACHINERY.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
J. M. Nash, Milwaukee, Wis.
Ober Mfg. Co., Cragrin Falls, O.
Baxter D. Whitney & Son, Winchendon, Mass.

HUB MACHINERY.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.

INJECTORS.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

JOINTERS.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Canadian Linderman Co., Ltd.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

KNIVES (Planers and Others).
Shurly Dietrich Co., Ltd., Galt, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
E. C. Atkins & Co., Hamilton.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.
Samuel J. Shimer & Sons, Milton, Pa.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
H. W. Petrie, Ltd., Toronto.

LACE LEATHER.
Sadler & Haworth, Montreal.

LAST MACHINERY.
Canada Machinery Agency, Montreal.

LATHES (Pattern Makers').
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Valley City Machine Works, Grand Rapids Mich.
H. W. Petrie, Ltd., Toronto.
Thos. White & Sons, Paisley, Scotland.

LATHES (Turning).
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Haspeler, Ont.
C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Plessisville Foundry, Plessisville, Que.
Valley City Machine Works, Grand Rapids, Mich.
Baxter D. Whitney & Son, Winchendon, Mass.
H. W. Petrie, Ltd., Toronto.

LOOSE PULLEYS.
J. A. Fay & Egan Co., Cincinatti, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

LUBRICANTS AND GREASES.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

LUMBER.
Elgie & Jarvis, Toronto.

MITRE MACHINES.
Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

MITRE SAWS.
Shurly Dietrich Co., Ltd., Galt, Ont.
E. C. Atkins & Co., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Canada Machinery Corporation, Ltd., Galt, Ont.
Simonds Canada Saw Co., Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo N.Y.
H. W. Petrie, Ltd., Toronto.

MITRE CLAMPS.
Black Bros. Machinery Co., Mendota, Ill.
H. W. Petrie, Ltd., Toronto.

MORTISING MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Jones & Glass Co., Montreal.
Mussens, Ltd., Montreal.
Plessisville Foundry Co., Plessisville, Que.
Valley City Machine Works, Grand Rapids, Mich.
H. W. Petrie, Ltd., Toronto.

MOTORS.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.

MULTIPLE BOXING MACHINES.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
J. M. Nash, Milwaukee, Wis.

PATTERN SHOP MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Baxter D. Whitney & Son, Winchendon, Mass.
E. & B. Holmes Machinery Co., Buffalo N.Y.
H. W. Petrie, Ltd., Toronto.

PICTURE FRAME MACHINERY.
Black Bros. Machinery Co., Mendota, Ill.
Canada Machinery Corporation, Ltd., Galt, Ont.
Hespeler Machinery Co., Ltd., Hespeler Ont.

PLANES.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler Ont.
Mussens, Ltd., Montreal.

PLANERS.
Berlin Machine Works, Ltd., Hamilton Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Baxter D. Whitney & Son, Winchendon Mass.
E. & B. Holmes Machinery Co., Buffalo N.Y.
H. W. Petrie, Ltd., Toronto.

PLANING MILL MACHINERY.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Samuel J. Shimer & Sons, Milton, Pa.
Baxter D. Whitney & Son, Winchendon, Mass.
Black Bros. Machinery Co., Mendota, Ill.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie Co., Ltd., Toronto.

PULLEYS.
Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinatti, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.

QUARTZ.
Wausau Quartz Co., Wausau.

RESAWS.
Shurly Dietrich Co., Ltd., Galt, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency Montreal.
Simonds Canada Saw Co., Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinatti, O.

Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

RIM AND FELLOE MACHINERY.
J. A. Fay & Egan Co., Cincinnati, O.
Canada Machinery Corporation, Ltd., Galt, Ont.

RIP SAWING MACHINES.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Canada Machinery Corporation, Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

ROLLER BEARINGS.
Mussens, Ltd., Montreal.

SAFETY GUARDS (For Band Saw Machines, Jointers, Rip Sawing Machines, Shapers, Swing Saws, etc.).
The Jones Safety Device Co., Ltd., Hamilton, Ont.
Fair Manufacturing Company.

SANDERS.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
J. M. Nash, Milwaukee, Wis.
Ober Mfg. Co., Chagrin Falls, O.
Fisher Sander Co., Berlin, Ont.
Black Bros. Machinery Co., Mendota, Ill.
H. W. Petrie, Ltd., Toronto.

SAND.
Wausau Quartz Co., Wausau.

SANDPAPER.
Black Bros. Machinery Co., Mendota, Ill.

SANDERS (Moulding, Belt and Panel).
Black Bros. Machinery Co., Mendota, Ill.
H. W. Petrie, Ltd., Toronto.

SASH, DOOR AND INTERIOR TRIM
Bremen & Sons, Hamilton, Ont.

SASH, DOOR AND BLIND MACHINERY.
Berlin Machine Works, Ltd., Hamilton.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Samuel J. Shimer & Sons, Milton, Pa.
Black Bros. Machinery Co., Mendota, Ill.
H. W. Petrie, Ltd., Toronto.

SAWS (Hand).
Shurly Dietrich Co., Ltd., Galt, Ont.
E. C. Atkins & Co., Hamilton, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
Simonds Canada Saw Co., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.

SAW MILL MACHINERY.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.

Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

SAW SWAGES, AUTOMATIC FILERS.
E. C. Atkins & Co., Hamilton, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

SAW TABLES.
Canada Machinery Corporation, Ltd., Galt, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

SCRAPING MACHINES.
Baxter D. Whitney & Son, Winchendon, Mass.

SCROLL SAWS.
Canada Machinery Corporation, Ltd., Galt, Ont.
Shurly Dietrich Co., Ltd., Galt, Ont.
E. C. Atkins & Co., Hamilton, Ont.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.

SECOND HAND MACHINERY.
Canada Machinery Agency, Montreal.
Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

SHAPERS.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Plessisville Foundry, Plessisville, Que.
Samuel J. Shimer & Sons, Milton, Pa.
Baxter D. Whitney & Son, Winchendon, Mass.
H. W. Petrie, Ltd., Toronto.

SHAVING COLLECTORS.
Canada Machinery Agency, Montreal.
Sheldons, Ltd., Galt, Ont.

SINGLE SPINDLE BOXING MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.

STAVE SAWING MACOINE.
Baxter D. Whitney & Son, Winchendon, Mass.

SURFACERS.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Baxter D. Whitney & Son, Winchendon, Mass.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

SWING SAWS.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Plessisville Foundry, Plessisville, Que.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

TABLE LEG LATHES.
Berlin Machine Works, Ltd., Hamilton, Ont.
Thos. White & Sons, Paisley, Scotland.
J. A. Fay & Egan Co., Cincinnati, O.
C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Baxter D. Whitney & Son, Winchedon, Mass.

TENONING MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

TOOLS (Hand).
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Samuel J. Shimer & Sons, Milton, Pa.

TRIMMERS.
Berlin Machine Works, Ltd., Hamilton.
Canada Machinery Corporation, Ltd., Galt, Ont.
Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.

TRUCKS.
Canada Machinery Corporation, Ltd., Galt, Ont.
Sheldons, Ltd., Galt, Ont.
Hespeler Machinery Co., Ltd., Hespeler, Ont.

TURNING MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
C. Mattison Machine Works, Beloit, Wis.
Canada Machinery Corporation, Ltd., Galt, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Plessisville Foundry, Plessisville, Que.
Baxter D. Whitney & Son, Winchendon, Mass.
H. W. Petrie, Ltd., Toronto.

UNDER-CUT SELF-FEEDING FACE PLANER.
J. A. Fay & Egan Co., Cincinnoti, O.
Canada Machinery Corporation, Ltd., Galt, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Falls Machine Co., Sheboygan Falls, Wis.

GUMMERS, ETC.
E. C. Atkins & Co., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.

UNIVERSAL WOODWORKER PLANER.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Elliot, Bathurst St., Toronto, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

VENTILATING APPARATUS.
Sheldons, Ltd., Galt, Ont.

VENEER DIERS.
Sheldons, Ltd., Galt, Ont.

VENEER PRESSES (Hand and Power).
Canada Machinery Agency, Montreal.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Hydraulic Press Mfg. Co., Mount Gilead, Ohio.
Mussens, Ltd., Montreal.
Black Bros. Machinery Co., Mendota, Ill.
William R. Perrin & Company, Toronto, Can.

VISES.
Mussens, Ltd., Montreal.

VISES (Band Saws).
Shurly Dietrich Co., Ltd., Galt, Ont.
Simonds Canada Saw Co., Montreal.
E. C. Atkins Co., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
H. W. Petrie, Ltd., Toronto.

VISES (Pattern Makers').
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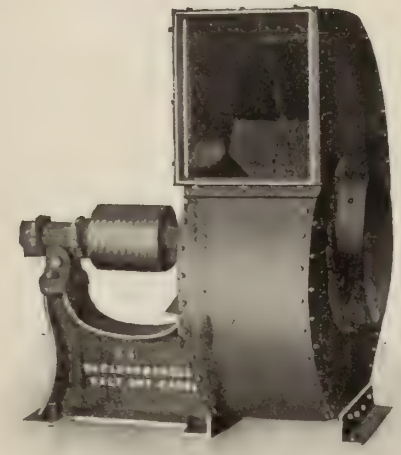

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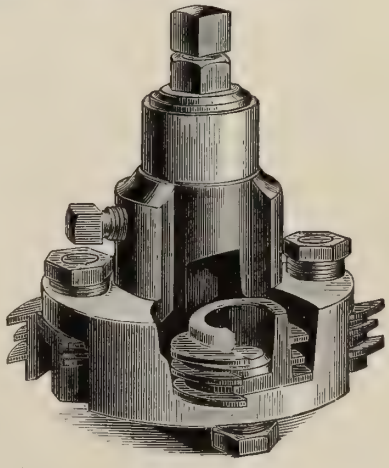

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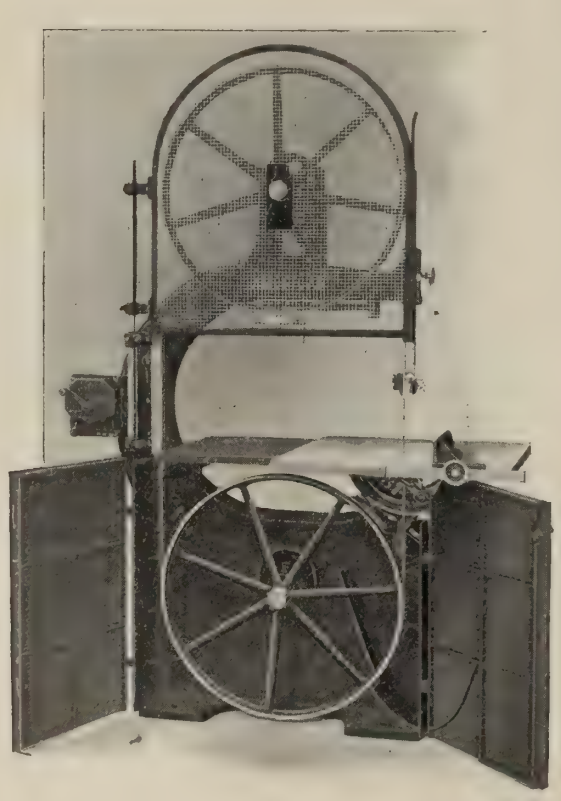

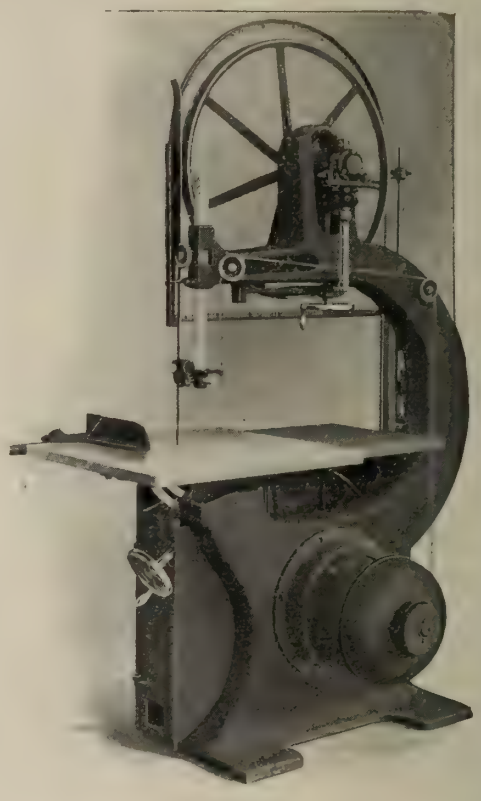

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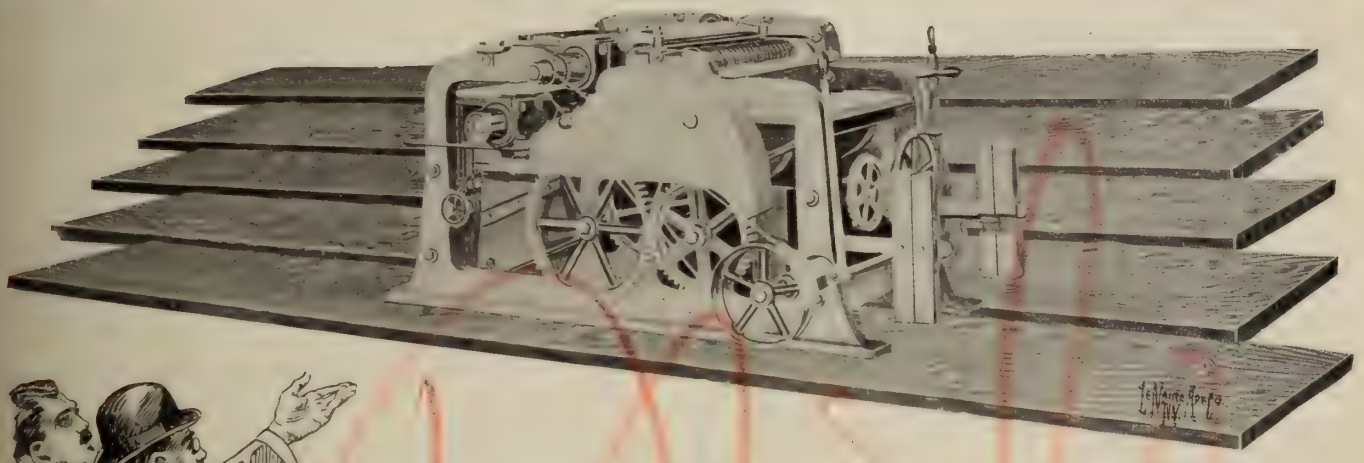
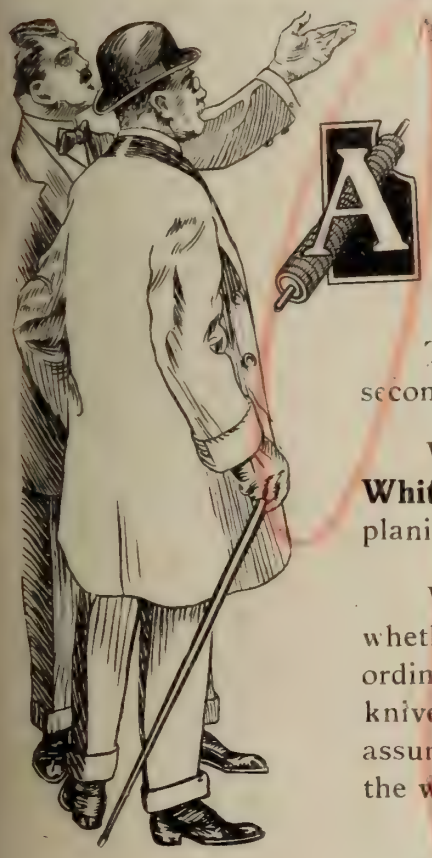
Toronto, May, 1912





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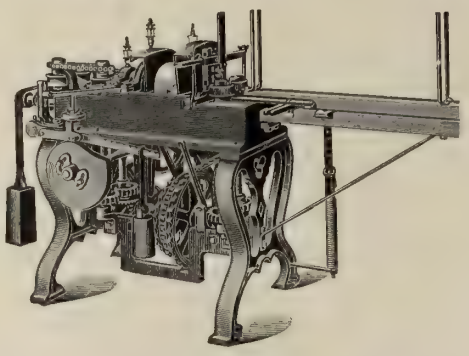

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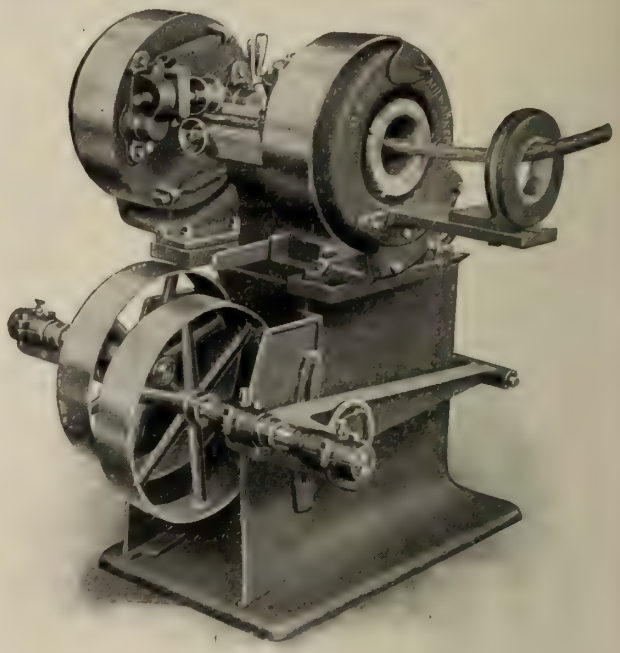

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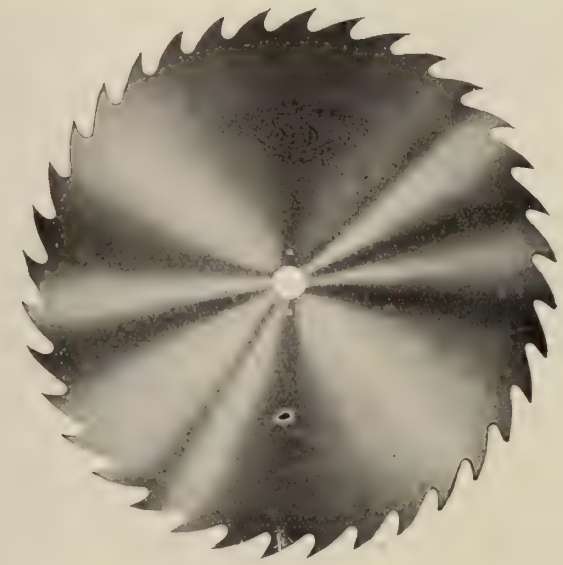

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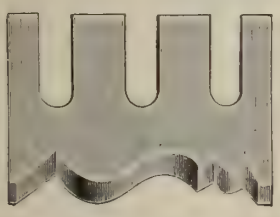

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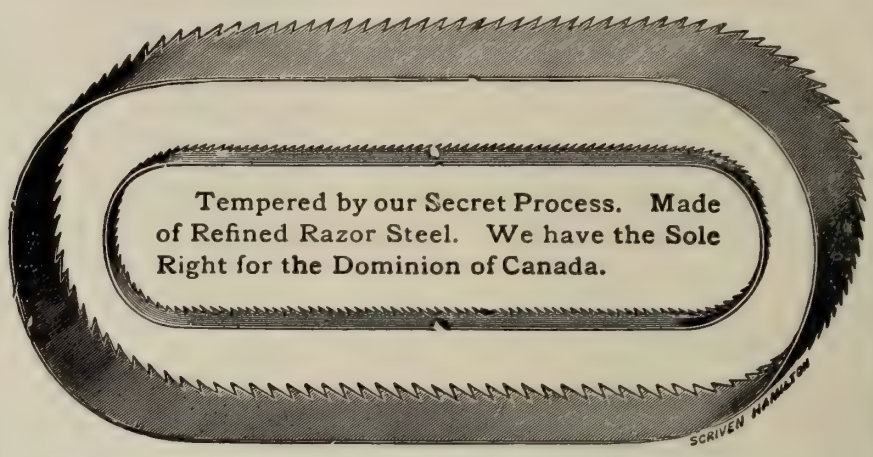


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These Saws are made of Refined Razor Steel, and Tempered by our Secret Process; for Fine Finish and Temper are not excelled.

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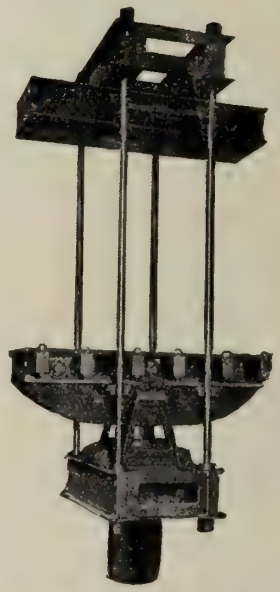

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**We make every kind of Saw required in Saw Mills, Planing Mills, Furniture Factories, Piano Factories, Carriage Factories, etc., etc.**

We have been manufacturing for the Canadian trade since 1855, and have maintained the same high standard of excellence. Let us know your saw requirements.

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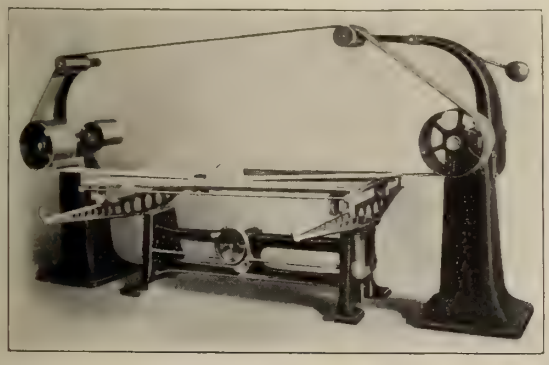
Of The Well Known Hand Block Type



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Here you have a Belt Sander that is built along practical lines. It is strong and substantial in construction, the adjustments are all simple and convenient, the workmanship is accurate and strictly high grade throughout—an honest machine built to produce perfect work and give continuous service.

The variety of work handled by this machine to profitable advantage is so unlimited that practically every furniture factory, cabinet shop and planing mill is needlessly wasting time and money by not having one installed.

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**Veneer Press**

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**Column Clamp**

# 1911 Model Linderman Au

# WHO are using them:—

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W. C. Edwards Co., Ottawa, Ont., 8 ft. machine, boxes

Meyer-Thomas Co., Granby, Que., 4 ft. machine, boxes

Zimmerman Bros., Tavistock, Ont., 12 ft. machine, boxes

M. Langmuir Mfg. Co., Toronto, Ont., 10 ft. machine, trunk boxes

J. Eveleigh & Co., Montreal, Que., 8 ft. machine, trunk boxes

L. McBrine & Co., Berlin, Ont., 6 ft. machine, trunk boxes

Cummer-Dowswell, Ltd., Hamilton, Ont., 6 ft. machine, washing machines

Wm. Cane & Sons Co., Newmarket, Ont., 3 ft. machine, woodenware

Czerwinski Box Co., Winnipeg, Man., 8 ft. machine, store fixtures

Cushing Bros. & Co., Calgary, Alta., 12 ft. machine, interior trim, veneered doors, sto
office fixtures

Western Manufacturing Co., Regina, Sask., 16 ft. machine, interior trim, veneered doorss
and office fixtures

Canadian Pacific Railway Co., Montreal, Que., 10 ft. machine, railway cars

Knechtel Furniture Co., Hanover, Ont., 6 ft. machine, furniture

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# WHAT are they making:—

**BOXES:**—Converting narrow width lumber, shorts and short shorts into wide stock for one piece ends, sides, tops and bottoms, effecting a saving in the original purchase of their lumber from $2.00 to $10.00 per thousand, actual figures given after testing out the machine, securing results in the finished product never before possible.

**BANK, OFFICE AND STORE FIXTURES:**—Interior finish; cores for veneered doors; casing; base boards, etc.

**CORE WORK** for interior of cars; joining up solid panels, etc., for sleepers, diners and coaches.

**WIDE PANELS** for washing machines from narrow widths so as to make tight water joints where before wide lumber was necessary.

**HEADING** for candy pails, lard tubs and wooden buckets of all descriptions, utilizing the narrow widths of stock 1″ and upwards, 7″ long and upwards.

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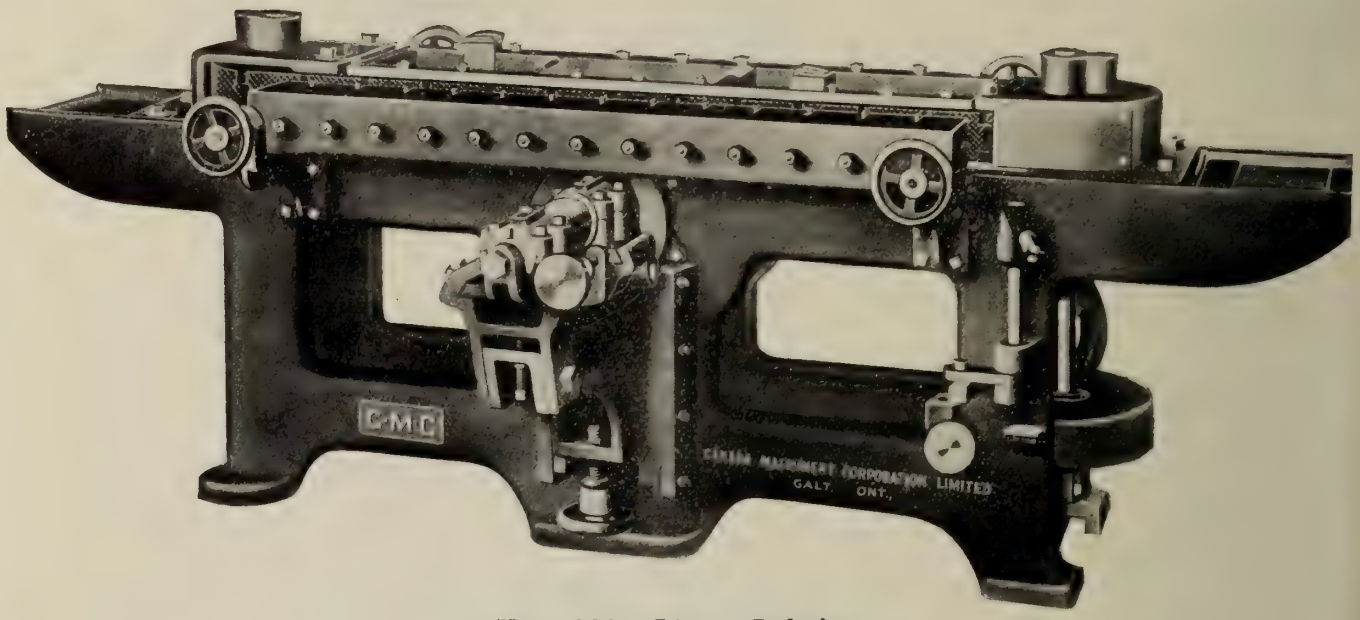


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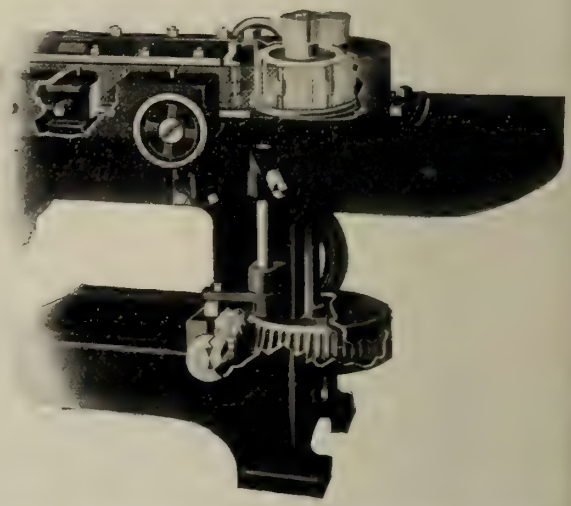

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**Vol. 11** **May, 1912** **No. 5**


# Shortage of Help

## In Woodworking Industry Largely Owing to the Fact that not Enough Encouragement has been Given the Boy

### A Movement on Foot to Give a Boy a Training in the Shop

As previously predicted in these columns the woodworking industry will have the busiest year this country ever experienced, during 1912. And there is only one thing likely to prove troublesome and that is the shortage of men. This shortage is already being felt not only in the small towns but also in the cities where plenty of help is usually available at this season of the year.

This shortage of help is not confined to the building trades by any means as the planing mill and furniture manufacturers are sorely in need of efficient help and are prepared to pay higher wages than have ever before been offered.

Many instances of the shortage of men—good men—can be cited, but two will suffice: First there is the fact that one of the largest furniture manufacturing concerns in Canada has sent a representative to England in order to induce men to come to this country. Another, and no less striking is that all the large daillies contain each day many advertisements for woodworkers—the list calls for men to fill positions such as for machine-hands, sawyers, bench-hands, polishers and so on.

This shortage of men at the present time presents two problems that must be faced and solved, otherwise the same difficulties will be met with each succeeding season.

It is worth while to pause right here and look into the causes that have led up to this condition of affairs. Anyone at all acquainted with trade conditions in Canada during the years 1890 and 1892 will remember that business, both in the building and manufacturing trades, was almost at a complete standstill. Men with families were out of work for months and became so disgusted and discouraged with the trade that they determined not to allow their sons to learn the business that offered so few opportunities of earning a comfortable living—they forgot for the time being that other lines as well as their own were suffering to the same extent. But the woodworker, carpenter, machine-hand and furniture maker seemed to have felt it the most. However they carried out their intentions and when their sons were ready to start out to learn a trade, care was taken to see that it was not the woodworking trade. And strange though it may seem, this antagonism to the trade still exists to a more or less extent right up to the present time, especially in the larger cities where so many opportunities are presented to the ambitious youth.

Business in all branches of the woodworking trade has been exceptionally good during the past ten years. The large number of new-comers to Canada during that period boomed the building trade. Thousands of homes have been erected, particularly in the large centres. These homes required furniture. This made work for the cabinetmaker—in fact all classes of woodworkers have been in demand. But the old hands were dying off and no young men, at least not enough, were being trained to take their places.

Fathers of families are not altogether to be blamed for discouraging their sons from taking up the trade. Employers must be prepared to accept a portion of the blame. What opportunity have they offered to an apprentice? Practically none.

How many woodworking establishments in Canada have what can be called thorough apprenticeship systems. Indeed many employers have been heard to say, and quite recently too, that they have no time to train boys except to do some special work either on the bench or machine. The average Canadian boy objects to this. He soon sees that even though he may become expert at some particular line the pay will remain comparatively small unless we except, of course, a man who has become a first-class stickerhand or bandsaw and repair man. Also ranking with the lathe may be mentioned the re sawyer but few other.

### Giving the Boy a Chance

It is pleasing to note that the Canadian manufacturer has awakened to the fact that in order to have a sufficient number of skilled workmen to operate the machinery and take care of the bench work in our woodworking factories, something more than the mere smattering of knowledge gained in the manual training schools is necessary, and are now beginning to give the boy a chance to learn thoroughly whatever branch of the trade he may decide to take up.

This is undoubtedly a move in the right direction, and while no reflection is intended on Canada's manual training or technical schools, it must be admitted that they are not to be compared with those of other countries, notably Germany or the United States, so far as their equipment for training boys in the art of woodcraft or teaching them the mysteries of woodworking machinery is concerned. Lacking these facilities for the present at least, it is particularly gratifying to find that the Canadian manufacturer is taking so deep an interest in the boy and is evincing a desire that some form of apprenticeship system be evolved.

The idea is still entertained by a great many of our practical men that the shop or factory is the proper place for a boy to learn a trade. It brings him into close contact with real working conditions. He has the opportunity of seeing how certain operations are performed by trained mechanics. In fact he sees how real work is done on a commercial basis. The ideal

training is a system combining shop experience with technical education in a school.

Canada is already a great manufacturing country and is destined to be even greater. Conditions to-day —especially in the woodworking industries—are vastly different to what they were in the lean years spoken of in the first part of this article. And a father, when the question arises, shall my son be a woodworker? should hesitate before saying No.

## Endless Bed Sander and Planer

There are many good points about the endless bed that are excellent, and a good many men consider it is the ideal feed. Disappointment with it in the past came from imperfections, and from noise and clatter and from the wear and tear generally. There was enough fault found on this account that smooth rigid beds with sectional rolls in them to ease the stock up a little were given the preference.

In the meantime improvements were being made in endless-chain devices and other endless mechanism. The old sprocket wheel and chain was discarded pretty much as the endless bed, but by and by came back again in the form of a noiseless chain of tempered steel and more perfect mechanically, and with many of its old-time objectionable features eliminated, or so nearly so as to make it meet with approval, so to-day we have some excellent arrangements in endless-chain devices.

It is the same improvements that brought endless-chain devices back into competition with gears, only, of course, in different form, that has brought the endless bed back to planers and sanders. It has come back with many of its objectionable features removed, and it has come back because of the fact that there are certain qualities about the endless bed that it is impossible to obtain with a rigid bed-plate and smooth rolls in it here and there to help the stock through.

The endless bed is the ideal method for feeding short stock through either a planer or sander, and it is also an ideal way to get stuff through with the minimum of pressure from the top rolls. We all know that in a smoothing planer the greatest difficulty lies in adjusting the bottom rolls of the bed-plate so as to get smooth running without getting the work so tight on the bed that it is impossible to feed it through. With the endless bed this trouble disappears. The endless bed itself carries the stock through, and should, therefore, make the ideal feeding mechanism for the smoothing planer.

The good qualities of this method of feed are also claimed for the sander. And although the feed of an endless feed sander is considerable slower than the roll feed machine, this is more than compensated for by the fact that the operator may keep the machine filled up to the full width of the bed, which is of steel slats. These slats are attached to an endless chain of cast iron links. On each of these slats there are conical shaped rubber cups which come in contact with the material being passed through the machine, causing suction that holds it in place. Men who have had experience with this new type of sander claim that it is much simpler of adjustment, and for working short material has much to recommend it.

We would like our readers to give their opinions on this subject of endless bed smoothing planers and sanders. It is a question of more than ordinary interest to those woodworkers who have much to do with planing and sanding short stock.

## Believe in the Boy

Thirty years ago a man put his hand on the shoulder of a seventeen-year-old boy and said: "Boy, I believe in you. You've got it in you to make good." The boy's father had just passed away; things were pretty cold and confused to the boy's mind, but that evening after his boy duties were over he went home with a lighter heart. Somebody believed in him and had told him so! It was a simple thing,, one may say, but isn's it, after all, the simple things that ofttimes make the greatest impression and carry the most lasting influence? That boy is now one of the most successful men in the country, "and all," as he said not long ago, "because that man gave me heart; gave me courage; made me feel that somebody believed in me. From that evening I worked like a nailer."

It is worth remembering. Many a boy there is who needs just that hand on his shoulder and the marvellous stimulant of "I believe in you." Youth is apt to be quiet and ofttimes morose; it thinks to itself and lives within itself. Adolescence ofttimes makes a boy silent; somehow he cannot reach expression, and all sorts of perverted notions of fancied shortcomings and the attitude of others toward himself grow within him. He gets absorbed with the idea that no one understands him; no one believes in him. For there is such a fearful gulf between the boy of immaturity and the man of experience. The right word of encouragement, of belief, of confidence, spoken at the right time, would have turned the scales for many a boy. And it can now. There are just as many boys who want to be believed in as ever there were. And they hunger to be told so! What they might do and become if some man told them so, only the man who was once a discouraged, silent boy knows and understands.

## Bits of Workmanship Wisdom

Always be on time. If some one told you you were lacking or shiftless, you might feel hurt.

Bear in mind you are selling your time by the minute. If not properly tilled, the crop will be poor, and you will wonder why you cannot command the standard price for it.

Do not agitate outside matters inside of working hours. This does not mean that you are to be a dummy; but it does mean that while you are agitating this or that question your mind is on the question and not on your work, saying nothing about the loss of time.

Do not judge what you are earning by what the other fellow is doing; he may not have reached the end of his rope, or may have a "pull," as the saying goes. Don't make too much of the other fellow's mistakes; you are not exempt.

Machines take stock any way you give it to them. If you make a miscue, speak to the foreman about it; he will feel better, as then he can decide just what to do with it.

Don't be grouchy and disagreeable. Others have troubles, too. Temper your patience; he who gets angry over trifling matters has an upper flat for rent. Don't blame the machine; if it could talk you might walk.

Forget half what you hear—it may not be so. If the boss looks mad, say nothing; it may be the other fellow. Try to forget the work "can't." It's a bad asset.

# From the Wood-Finisher's Point of View

By A. Ashmun Kelly

### Imitation of Mahogany

It is not every hardwood that one can take and make it look like mahogany. This may sound strange to the expert but I have known an architect to take a piece of birch stained mahogany color and declare that no one could detect the imitation. As a matter of fact any wood finisher with experience with staining knows that it is not at all difficult to pick out the real from the sham in a lot of good samples of both. The best we can do it to approximate the appearance and this can be best done with birch or cherry. I prefer the cherry to the birch, for it is naturally a closer approach to mahogany in its finer markings and general texture.

But why the imitation? Surely both birch and cherry are beautiful woods in the natural finish. When one can choose between the natural and the stained wood, as in furniture, it is wise to take the natural finish for then it is not so easily marred and far easier to renovate when necessary. When a piece of mahoganized furniture is scratched or otherwise marred it is next to impossible to make it good again, certainly not without doing the whole thing over. And no stained wood looks like the wood it is intended to imitate.

The best woods for staining mahogany are, as stated, cherry and birch, but we might add maple also to this brief list. In fact, any hardwood of close texture and not pronounced grain will answer the purpose. It is the color more than the wood that counts, though of course pine and poplar would not do. The wood must be perfectly dry, and made as smooth as possible with plane and sandpaper. Here are some formulas for staining the wood:

In one quart of alcohol put two ounces of dragon's blood, which must first be broken to pieces. Use strong alcohol, say 90 per cent. Place the ingredients in a bottle and in a warm place, shaking it occasionally, to facilitate the dissolution. When this has occurred it may be carefully strained and then used.

Rub the surface of the wood with a solution of nitrous acid. Having previously made a solution of dragon's blood, one ounce to a pint of alcohol, add to it one-third ounce of carbonate of soda and mix all together, then filter it. This gives a very good color and a finish with linseed oil may be given.

Usually wood stains are applied hot, for in this condition they penetrate the wood better. If a wood on account of its color does not lend itself readily to the stain you can bleach it first, using this solution: nine ounces of chloride of lime, one ounce of soda crystale, and two and one-half ounces of soft water. The surface of the wood must be given repeated applications of this liquid so that it will keep wet for one-half hour, or until the bleaching is accomplished. Then wash off with a solution of sulphuric acid, which follow with a washing with clear water. Let it dry, then it will take the stain clearly. A very simple and most excellent mahogany stain may be had by boiling two ounces of Bismarck brown in one gallon of water, continuing the boiling until the brown is dissolved. Let it cool, then strain it well. When about to use it, make it hot again, and add one-half pint of ammonia and one-fourth of turpentine.

### Fillers for Turned Work

A firm in New York state manufacturing reels and bobbins for cordage and wire mills asks for a filler for its goods, saying by way of explanation that in turning the wood for spool barrels it often happens that there is a check in an otherwise sound piece, and it is this they wish to fill. I presume that the filling could be done while the wood was on the lathe, after completion of furing, in which case the ordinary paste and liquid fillers would not do. Something like beaumantique would seem to be the article required. This is simply a filler with some wax in it, colored to suit the wood.

Without understanding exactly what it required in the premises it is rather difficult to solve the problem. Wax, I think, would be as good as anything, made into a paste with turpentine, for it would fill the checks and not discolor the wood. In fact, there are many things that would fill the wood satisfactorily and we would suggest that some experiments be made. Cooked cornstarch with some whiting in it is sometimes used for wood filling. If the filling is done on the lathe it is only necessary to place some of the filler on a rag and hold this to the revolving wood, just as turners fill cabinet wood articles on the lathe with oil and shellac.

### Transparent Filling

This leads up to the subject of transparent wood filling. This is sometimes very desirable yet very difficult of achievement because the oil or other fluids used in the filling discolor the wood more or less, even when the filler is comparatively colorless. A new German process would seem to solve this problem for us. It undertakes to fill the pores of the wood with a transparent material which will prevent oil from striking through. First the wood is rubbed with oil, either raw linseed or polishing oil, then the superfluous oil is wiped off with a piece of soft paper wet with alcohol. Now the surface is ready for a coating of shellac, purified and clarified by filtration, this being sprayed on, using an atomizer. Then it is polished with a solution of celluloid in alcohol, rubbing with a regular pad. The pad parts with its liquid which is then pressed into the pores of the wood; this celluloid solution dissolves the shellac in the pores of the wood and attaches itself firmly to the walls of the pores; it is of course perfectly transparent. This filling is also very elastic, on account of the celluloid, and it is said to become perfectly incorporated with any subsequent finish that may be placed on it. In this important respect it is even better than anything we have heretofore been using.

The actual method of filling wood calls for mineral filling material, silica being commonly employed though whiting and silver white also are used. The only possible objection to a mineral filler is that it will show up in the pores of the wood, more or less. Silicia does not do this to any great extent, yet it does it a little. Whiting is very bad in this way, and cornstarch is still worse, if possible. A mineral substance penetrates both the coarse and fine fibres of the wood, and, being opaque and of a different color from the wood and the polishing coat which follows, both the color and the grain. Again, it is pointed out that while the mineral fillers are greedy of oil they do not hold the oil permanently, so that, while the oil in the polishing is taken in by the pores, it comes out of them later, under the influences of temperature.

This is worth thinking about. Some troubles with finished furniture and cabinet work may be due to this very thing.

### Polishing

There are two processes of polishing that may be described here. By the quick method we take a handful of raw cotton and dip it in a mixture of equal parts of sweet oil and alcohol, rubbing the surface of the work with this in a circular manner. After a time the polish begins to show. By the slow process we first bring the work to a perfect level by rubbing then flow on a coat of flowing cabinet varnish, and when ready for rubbing rub it in with FF pumicestone powder, after which clean up. Rottenstone powder also may be used in the rubbing, using a chamois and rubbing in a circular way. The rottenstone powder is always a good thing after the rubbing with pumicestone because it will rub out any fine scratches made by the pumicestone powder. Allow the rottenstone to dry on the work, then rub this off with the palm of the hand, in a rotary manner, wiping the hand every time it passes over the work.

### Artificial Shellac Varnish

While not nearly so costly as it once was, owing to the denaturing of grain alcohol and consequent lowering of the price of both grain and wood alcohol, yet for some purposes it is too costly to use where its use would be very considerable. It can be bought in the market under another name as a substitute shellac varnish at a correspondingly low figure but many of my readers will no doubt be interested in learning just how a clever imitation may be obtained. There are several ways or formulas, of course, but one may adequately indicate many.

Here is a very good formula, published by G. B. Heckel of Philadelphia. Mr. Heckel states that this is a new and valuable material placed in the market by a New York man. It is a hard gum and like shellac dissolves readily in the usual solvents. It can be mixed with rosin and gives as a result a most beautiful lacquer or orange alcohol varnish imitation that has already found many uses. The formula is thus: Shellac, 100 pounds; French artificial kauri, 50 pounds; common rosin, 50 pounds; camphor gum, 1 oz.; acetone, 5 gals.; and wood alcohol, 30 gals.

Considering that at least three-fourths of the cost in finishing cheap furniture is in the labor, it would seem to be a matter of reducing this cost, rather than in using cheaper materials. In fact, neither would be the best thing. Cheap labor is not usually a good investment where one seeks to produce goods at the lowest cost. Poor materials are not cheap excepting in price, for they will not do as much as a better article will, that is, as a rule. Of course it is true that a filling with glue size will bear out a finish of one or two coats of varnish very nicely but then you will want to get rid of the goods as soon as possible.

### Economy Based on Good Stock

If you are building a business on reputation, even where cheap goods are the basis, you will need to satisfy the customer, not only in the matter of price, but also in the more important matter of quality. You want to make a three-coat system answer the purpose and to do this it is necessary to use good, not poor, materials. A poor filling with two coats of rosin varnish will look as smiling as a summer morn when done, but in a very short time, may be before you ship it, and certainly in the dealer's shop, it will part from its gay lustre and look like an outcast. Rubbing varnish may be bought for less than a dollar, I imagine, but one costing $1.50 will be the cheaper of the two. With it one thin coat will be better than one very heavy coat of the other. The thin coat will hold its gloss and look all right for a long time.

It surely is a bad thing to put a greenhorn at work filling wood. Of course you explain it to him so cleverly it would seem impossible for him not to do the work right, but you will find that the filler he has applied will have been mostly pulled out in the rubbing off. Without a good foundation you cannot get a good finish. If, then, the filling has been pulled out by ignoring cleaning up, what is the condition of the work when it comes to the varnishing room?

Again, often when the filling has been well done, the job is spoiled by the way the rubbing off of the surplus stuff is done. Carvings etc., will be rubbed out with a whisk or some equally unsuitable tool. The filling had better be rubbed with a pad or tow, which will enable you to press or work the filling well into the pores of the wood, working across the grain of the wood. After cleaning up the job let it stand for a day or even two, which would be better still. For cheap work we will not sandpaper the filling after it is ready, but the same is very good where it can be done, using fine or worn sandpaper for removing the grit that is always on after the filling has been rubbed off. This makes a very hard and smooth surface for the varnish.

Now we are ready to apply a surfacer, which may be had on the market in varying degrees of quality and price, but which I think is better than varnish because it has a mineral base that will form a very hard foundation for holding out the varnish. A good surfacer is easily put on, rubs well, and dries quickly. Also, they cover a great quantity of surface for a given quantity of material. On this surface apply a coat of rubbing varnish, and give it a good heavy coat, too. Rubbed, apply the polishing varnish is the next step.

A good tight, dust-free varnishing room is needed now. The cleaner you can keep the job the better the work and the less time it will take. There are polishing powders on the market that make the polishing a very easy as well as quick matter. Cutting nearly as fast as pumice powder, yet they will not scratch the work. Wet the surface of the job with polish, sprinkle on some of the polishing powder, then rub with felt on a block. This removes grit and specks. Now take some cotton waste, dampen it with the polish, and rub briskly for a few minutes. Follow by cleaning up and wiping dry using clean waste, and you will have a good polish job with the expenditure of little time or work.

### Expansion of Mission Oak

We have been asked to explain just what is Mission oak. First, it is oak stained to a greenish-black hue with a reddish tinge to the color. That is as near as we can put its color in words. The stain is made with lampblack which is modified a little with chrome yellow and a trifle of rose pink. Thin with turpentine and add japan driers. After the stain has become dry the wood may be filled with a paste filler stained with some of the mission stain. On this may be applied varnish with such subsequent finishing as may be desired, all in the usual way. If the finish is not wished as here outlined, simply stain the wood and oil or wax it. This is done by many, who prefer the simple finish. But either way will be good Mission style, which, by the way, does not appear to lose its popularity.

# Fitting Factory Saw Teeth

Much has been written on fitting factory saw teeth, most of which is good if properly carried out in the right line of work, but in making the rounds of the factories we find plenty of room for betterment in fitting saw teeth. In some factories we find that anybody and everybody has a whack at the saw-filing—killing time, wasting files and ruining good saws and lumber. In some factories we find that the "filer" has a dozen other departments, more or less, to look after, and no time to "fix" the saws. In some we find the filing room in name only, i.e., not properly equipped with suitable tools. In many we find the saws not properly gummed out, out of round, with irregular teeth, and consequently out of balance.

In wood-working factories there are so many different kinds of sawing of different kinds of wood that the writer has no intention of trying to cover the whole field of fitting factory saw teeth. I simply propose to touch on a few of the most important things in fitting the teeth of small saws for a general line of factory work, such as box shooks or planing mill work. If it should be a help to even one new beginner, I shall be amply repaid. Most everyone knows that fitting saw teeth consists of gumming, jointing, setting, filing and side-filing, but the thing is to do it, and do the right thing right, at the right time.

The average fitter of factory saws does not realize that a little difference in width of teeth, a little difference in depth of throat, i.e., a little difference in gumming, may, and often does, throw the saw out of balance. The heavier the saw the less likely it is to shake in the cut when only a little out of balance, but high-speed thin saws or small high-speed factory saws must be in perfect balance to be successfully operated. Every wood-working factory should have a good automatic emery gummer for the small saws as well as large. It is possible to keep the teeth uniform by hand gumming when a template is used, but this is too slow and costly for this progressive age. There is too much burning and case-hardening of teeth in gumming. Many so-called filers ruin saws in gumming, and when the cracks show up and the points crumble the blame is laid on the sawmaker.

The factory filing room equipment should include a true running mandrel with self-centering cone, for jointing different size saws. Another good method is to joint saws on their running mandrel. If this method is used, the saw and both collars should be marked and the marks placed opposite when the saw is not on mandrel. Saws should run at a moderate speed when being jointed. Use a piece of grindstone or soft emery wheel. It certainly is very important to keep the saws perfectly round, but if saws are kept gummed out properly there will be very little waste of plate in jointing.

As the swage tooth is not much used in this kind of work, spring-set only will be considered at this time. The most common errors in setting are: Too much spread, setting too deep, uneven setting, and not setting often enough. There should be just enough set (on a radial line from point to centre) to give an easy clearance. The anvil and hammer principle is the best for setting small saws. The filing room equipment is not complete without a good adjustable setting stake and block.

It is an easy matter to file too much or too little. Care should be used to just file out the marks made by the stone in jointing, thus leaving all of the teeth the same length. More than this is too much filing. If all the teeth are not filed to a point, or the saws are run too long after getting dull, that is filing too little. Cross-cut teeth should be filed to a sharp bevel on the face or front, and a very slight bevel, or nearly square, across the back. This makes an easy, clean-cutting and strong tooth. Teeth of both cross-cut and rip saws should never be filed enough on the back to change the shape or outline. Rip saw teeth should be filed square across on the face or front and to a slight or moderate bevel on the back. Some filers think that lots of bevel on the back of teeth makes the saw cut easier. This is a mistake, but it does make a weak point, that is soon gone. Besides, the back of teeth has considerable to do with guiding the saw, and if it is filed away on one side, it simply is "not all there." The bevel should never be filed clear down to the throat. It does not pay to buy good saws and cut their throats with a file, especially a square-cornered file.

As it is rather difficult to set a saw so that all teeth are in perfect line with each other—that is, all of exactly the same spread—it is necessary to side-file to gage, being very careful to keep the cutting edges of the points the widest.

There are too many different shapes. The kind of wood and rate of feed should be considered and enough hook or pitch given to avoid scraping and cut freely, without a tendency to climb. The back should be low enough to clear the feed freely. This will make strong, easy-cutting, serviceable teeth that will stand up to the work, if the saw has the right number of teeth for the work being done. Too much time is wasted on design of pet shapes of teeth that might better be used towards making them all alike around the saw and cutting alike. If only one tooth has a long corner it is sufficient to cause waste of stock at the planer, as it takes a heavier cut to get a smooth finish. One short corner will leave a ridge that will rub and probably cause the saw to heat, unless there is too much set for best results. More depends on giving attention to these little things rather than to freak shapes of teeth. Any man with good common machine sense or average mechanical skill can learn to successfully fit factory saw teeth.

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### The Proper Way to Use a File

It is very seldom indeed that any attempt is made in any book or periodical to teach how the work of filing should be performed. Yet the subject is important, and for an apprentice user of a file a little good advice at the beginning of his career may save him several years of faulty and inefficient practice. Filing is like golf. A bad style is easy to acquire and difficult to drop; the initial acquisition of a good style is of paramount importance. A knowledge of the little understood science of filing is an unquestioned aid to rapid and good use of the file, therefore the results of many years' practice and of a careful study may help some tyro whose tasks take him to the mechanic's vice.

A great deal depends upon the choice of a file, says a writer in Australian Smith. A square file is undoubtedly the best for a flat surface in the operation of first filing and a pillar file is the best for finishing.

If one file only is to be used for all varieties of filing a safe-edge square file is the best tool. The reason for this preference is to be found in the fact that a square file has a greater thickness than a flat file, and is, therefore much stiffer in the direction in which the pressure is applied proportionate to its working surface. Also, it is narrower than a flat file and thus requires less force to make it "bite" the surface being filed.

If a file slips or slides over the work, there is something wrong. In the hands of an expert filer this stage indicates that a new file is needed. If the file is being used by a tyro or an inexpert workman the slipping or sliding may be due to other causes. Whatever may be the kind of file used, the pressure downwards should be heavy enough to make the file "bite" and hold its cut. With a wide flat file or with a dull file this pressure may reduce considerably the ability to file straight. This is another argument in favor of the square file, which requires less pressure, is under better control, and is more sympathetic responding to the touch of the worker better than any other variety.

In filing a surface it is necessary to "cross-file" it, which means to file in different directions until the marks of the tool have been made to disappear, and the desired flatness is secured. This cross-filing also enables the workman to see where the file is cutting, which is another important point in its favor. If the flatness has been tested with square or straight-edge, and a further reduction found desirable, the filing should then be done at right angles to the previous filing, as thereby the amount being taken off can be more readily estimated.

For flat filing use a flat file and localize the work. The meaning of the latter recommendation is that when the surface is larger than can be covered by the stroke, the worker should not make his file wander at random over the surface, but should first reduce perceptibly as much as the stroke covers, and then, selecting another similar area, give it a similar attention, thereby doing the work systematically.

The file may be oiled with advantage, especially when filing soft steel. But too much oil should be avoided. A good way to have it just right is to oil it first and then pull it through half a handful of cotton waste. This cleans the teeth, and sufficient oil remains. Chalk is sometimes used instead of oil, but it is much inferior.

For filing a concave surface, the good round surface of a bastard file will do for the first filing, but for subsequent work before finishing a square file is better than a half round file, and a crossing file is better than either. It is a good rule in filing a concave surface that the radius of the curvature of the file should be greater than that of the work. In a square file on a concave it is only on the corners that work is being done, but, even so, this is much better than with a round or the round side of a half-round file where, of course, the work is attacked by the centre of the tool. With a square or a crossing file—using the flattest side of the latter—much less pressure is required to make the file "bite," and it is much more easy to keep the line of work true. With a crossing file the working edges are not only on the two corners, as they are with a square file. When concave work has been brought to size and shape in the way desired, it should be finished by draw filing with a half round or crossing file, the radius of which is less than the radius of the surface.

In finishing work that requires a fine surface, and if using a new file, second cut, smooth or dead smooth, the file should be rubbed down lightly with an oil stone, the reason being that a few teeth in a new file frequently project a little above the surface, especially at the corners, and the oil stone in such a case renders these high teeth less likely to scratch the work.

The double-cut file is, of course, a file cut diagonally in two directions, the result being diamond-shaped squares. The most serviceable files are those in which the two cuttings are about equally distinct. Such files give better results than those double-cut files where one cutting is prominent and the other faint, so that the appearance is almost that of a single-cut file.

To file straight with a dull file is almost as difficult as it is to shave with a soup spoon. One cannot discard a file whenever it has lost its first keenness, but there comes a time, much sooner than is usually supposed, when an old file does not pay. It is not difficult to calculate when this time has come. Say a man receives 25 cents an hour, and is using a file that costs 25 cents. Whenever the use of an old file takes that man half as long again to do a piece of work as a new file would take, then in three hours' time with an old file the price of a new file has been lost. The time to throw away the old file has come before that stage was reached.

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### Cotton Belts

When placing an order for cotton belts always order as heavy a belt as the diameter of pulleys will carry. This is economy, as it reduces the strain on belt and machinery, making both wear much longer. The trouble with a great many users of belting is that they order belts too light, in which case they are constantly strained, naturally causing them to stretch abnormally, and not wear half as long as if they had the proper heft to do the work required of them.

Do not order a 6-ply belt to run over pulleys less than 10 inchts diameter, or 8-ply for pulleys under 16 inches diameter.

Comparatively few people putting on belts realize the fact that all the slack possible should be taken out of them before lacing. This can only be done properly by using belt clamps.

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### Rule for Finding Length of Belts

When it is not convenient to measure with a tape-line the length required, the following rule will be found of service: Add the diameters of two pulleys together, divide the result by two, and multiply the quotient by 3 -7; add the product to twice the distance between the centres of the shafts and you have the length required, substantially. If one pulley is considerably larger than the other, a little extra allowance should be made, because the distance from the centre of the top of one to the centre of the top of the other is a little greater than the exact distance between the centres of the shafts.

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A rip saw with an aggravating disposition to throw sawdust in the eyes of the operator, is an annoying thing to work with. There are ways to lessen this annoyance. One is by proper filing and setting; another, by having a spliter behind the saw. And in addition to these, there is the blower system.

# The "Coming" of Tupelo Gum

A manufacturer convinced against his will is of the same opinion still.

Prejudice is the hardest thing in the world to overcome. The greatest obstacle to the use of any method, device or material is that the deep-rooted opinions which have grown up about a confirmed practice resist destruction so persistently that the man who has the job of extirpating them usually realizes that he has lost some cuticle before he gets through.

This is true in the industries concerned with the use of woods as much as in any other. Manufacturers of wood products usually become attached to a particuliar material, and when, because of the lessening of the supply, accompanied by an increase in price which is almost prohibitive of use, some other material is offered to take its place, those who have been accustomed to the former wood find it a matter of moral impossibility to welcome the new offering. They may accept it and use it, but their minds refuse to give it place.

An exception to this general rule, which is interesting because it is exceptional, is the rapid progress which has been made in the substitution of tupelo, or bay poplar, in the cigar-box industry. This material has made its way so generally that it is perhaps safe to say that ninety per cent. of the veneered box material consumed by the trade at present consists of bay poplar. The period within which the change has taken place has been unusually short, yet, with an occasional exception, the cigar-box men say that they are pleased with the wood, and that it is doing the work as well as they could have expected.

The man who was familiar with the trade five years ago would have been justified in stating it would be impossible to put poplar out of business as the principal material for box purposes. He would have asserted, with the qualities of that wood in mind, and those of the available substitutes under consideration, that the cigar-box men would never discontinue using poplar, even though the price rose to $30 a thousand or more. Poplar advanced in price and became less plentiful; the manufacturers of cigar-box material studied bay poplar and found it suitable, and the trade put it into use and general acceptance within the short space of little more than a year.

The tupelo movement is simply the result of the operation of the law of supply and demand. Poplar went sky-hooting with the development of the automobile trade, and this gave the first impetus in the direction of securing a substitute. Although poplar is not at the crest of the wave which made it the feature of the lumber market during the automobile boom, it is still sufficiently high-priced to make it worth while to produce a cheaper wood, provided it can be furnished at a price low enough to make the change worth while.

Several woods were considered before bay poplar was finally resorted to. The requirements are that it be reasonably soft, absolutely odorless, and that it take cedar veneering well. All of these qualifications, as indicated, were filled by poplar more exactly than any other wood, but tupelo was found to be a good second best. This is proved by the fact that of the large number of cigar-box lumber manufacturers in the country only one is turning out old-fashioned poplar material as the bulk of his production.

It is hardly likely that the demand could be supplied at present prices if poplar were specified, as there does not appear to be enough of the material to go around. The increasing use of poplar in the furniture trade, where it has won a place for crossbanding in built-up work, and the increasing consumption in the same direction by piano manufacturers, has practically put it out of the market as a box material.

On the other hand, the demand for tupelo box lumber has been so great, since it was made the staple, that the price has gone up, too. The price of this material at present is reported to be what poplar was before the big increase in its valuation was developed. Present quotations on poplar material, f.o.b, the mill. are about $21.50 per thousand, while the manufacturers of tupelo cigar-box lumber are asking from $16.50 to $19 on the same basis. It is, therefore, evident that after all there is not such a large difference in price betwen the two. If the trade were to make an attempt to revert to the general use of poplar, the chances are that quotations on that material would undoubtedly advance sharply. The price quoted may be taken, therefore, as representing its value under present conditions, with tupelo the principal material used.

The average manufacturer of cigar-boxes accepted the change as one that had to come, and made the best of the situation. Before long he had reached a point where he was thoroughly accustomed to bay poplar, and while not entirely reconciled to the loss of the easily worked poplar material, he was content to go ahead with the new offering and accept it as the best that could be secured under the conditions. It was this willingness to give a good substitute a fair test and to accept it if it did the work required of it, that is worthy of comment.

Most manufacturers of cigar packages assert that the new material is all that could be expected, eliminating poplar, and that they have had no trouble making the change. It is somewhat harder, as a rule, than poplar, and this makes it a little more difficult to work; but those who have become accustomed to this assert that the difference is not sufficient to be really noticeable. They do not believe that any other substitute could be found which would do the work and would be available at anything like the price which is being paid for tupelo veneered with cedar.

On the other hand, a box man is occasionally found who still uses poplar whenever he can get it, and who insists that tupelo is greatly inferior to it. A vigorous opinion on the subject was recently expressed by a western manufacturer, who said:

"If poplar were no more than two dollars higher than tupelo material, I should buy it and consider myself getting the better of the bargain, for it certainly costs that much more to work the substitute. It's harder on the saws, it takes more time, thereby increasing the labor expense, and the work is not as good. As an example of this, I should say that the number of drive-outs, or cases where the nails fail to hold and show on the surface of the box, has increased several hundred per cent. since we began using tupelo. We have had to change the gauge of our nails, which has resulted in clogging up our nailing machines. Altogether, we have not found it satisfactory.

"The worst feature is the lack of uniformity about the material. Some of it is comparatively soft, other pieces are moderately so, and others are extremely hard. This makes it difficult to set a standard by which to judge the work which is being done. One of the best qualities of poplar is that it is always uniform. You can usually count on getting the same soft, smooth-grained wood every time, with no variations. That helps the manufacture a lot, and it is a big handicap not to know what you have to work when you open a shipment of material."

Generally speaking, however, bay poplar seems to be giving satisfaction, and while there are a few weak spots, as suggested, it is making good to a greater extent than anyone familiar with the exact suitability of poplar and the obvious objections to nearly any other wood would have thought possible.—G. D. C., Jr., in Hardwood Record.

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### Sappy Oak

The following article from an exchange will be read with interest by those who have always considered sap as so much waste the writer says.

Let us forget for a minute the connection with and the wrangles over sap, bright sap, sap stain and percentage of sap in grading rules and specifications, and think of sap merely as oak. Sap oak has suffered unjustly from abuse.

It has been neglected because it has not been properly valued. The sap part of oak has been considered as inferior and the outside or sappy boards have never been regarded with much favor. Consequently, they have been dumped indiscriminately. The sun has been allowed to check them, dirt has gotten into them and stain set up, and all of these things are doing to sap oak what we understand is generally done to a dog when it is given a bad name and turned loose.

If properly cared for from the time it is cut until it is used, and if used in a correct manner and in the right place, sap oak will often give good results. For certain schemes of finish in cabinet work it is really a better body to work on than heart oak. It is the same way in flooring and in mill work. If one but takes care of the sap and segregates it from the heart stock so as to get it all together for harmony in texture and color, there is a chance to do just as effective work with sap as with heart. There is no comparison of sap with heart for timbers and exposed work outside where durability is an object under the method of using the timber plain, but with the modern systems of treating wood the sap part of oak is being made much more useful and durable even for outside work.

It is sap oak for high-grade interior work that the writer has in mind, for mill-work, interior trim, furniture and other cabinet work. For instance, if sap oak flooring is selected and laid with care and properly stained before finishing, it will present a beautiful appearance—one that appeals to some people more strongly than the red tone of the heart. It may be finished either very light or an unusually dark stain applied with a filler and then in rubbing off there is brought out a strong contrast of dark and light effects that is very striking.

The same effects produced in flooring may be obtained in a higher degree in furniture and cabinet work. The only thing necessary is to take care of the sap stock from the time it is cut at the mill until it is ready to be used at the factory. Then get enough of it together to make harmony. To have the sap dominating in the particular work in which it enters, and then if the work is carried out right, one can get new appreciation of the possibilities and beauties of sap work. We need more of this appreciation as an incentive to take better care of it at the mill when it is first manufactured. The sappy part of oak is more likely to check from the sun and wind, and therefore needs extra care.

It should be carefully piled with perhaps more cross sticks than the heart stock in order to keep it straight and in good shape. All this will make it cost a little more, but it should add several times the additional cost to the value of the stock. J.C.T.

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### Europe Has the Greatest Supply of Oak

The demand for oak from various parts of the world will probably continue as long as the different oaks continue to possess special characteristics.

The English oak will always be wanted for fine interior finish, and particularly for ecclesiastical work. For some purposes the Austrian oak and the American white oak will continue to demand the attention of woodworkers producing a high-gride product.

The question of where we shall obtain our future supply of oak flooring and of oak for the more common lines of furniture is an ever increasing problem. In both England and continental Europe there are still protected forests of considerable area from which we shall obtain fine samples of figured wood for years to come.

Austria possesses oak forests which will continue to produce much panel, wainscoting and ooring stock. The cut of both white and red oak in the United States is growing steadily less so that this countrv must inevitably look to more distant sources in the future in place of being, as hitherto, a means of supply for other countries.

It is reported that there are vast tracts in theCaucasus that are timbered with a very high-grade oak, none of which has thus far come into the market. A few hundred miles north of the Black Sea there is a vast hardwood belt extending across much of Russia. In southern Siberia there are also vast oak forests extending completely to the Pacific. Parts of Japan, and particularly the northern islands, are heavily wooded with oak. The Japanese and Siberian oaks are alreadv beginning to find their way into the Pacific Coast markets of the United States in larger quantities and cargoes from these sections have also appeared in the British trade.

It seems strange that the greatest supply of oak is probably in Europe close to the longest settled centre. It is possible that the Russian timber wolf and the brigand of the Caucasus Mountains have unconsciously been conservationists to the benefit of those of us who must live in the twentieth century.

It is to be hoped that the Russian government will permit the development of these forests under such supervision as to insure the timber for all time to come, thus taking a lesson from nations who find themselves facing bankruptcy of their own natural resources.

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Some people seem to lose sight of the fact that to place a pulley out of line does not make a "high side," and that a belt will run always to the side of the pulley nearest, or where the shafts are nearer together. In running band-saws, you guide the saw on the wheels by tilting the top wheel, and of course the saw runs to the lower side of the wheel.

# Furniture Trade Prospects with Argentine

A large trade might be done with Argentine in house and office furniture, if Canadian manufacturers cared to take advantage of the opportunity presented. It is highly probable that at least a half of the furniture used in this country is imported, and that the item is a considerable one is shown by the customs statistics. From these it is learned that for the five years ending with 1909, the country purchased abroad, furniture of all kinds to the value of $7,580,488 gold (a gold dollar is equal to 96½ cents Canadian). A third of this came from Austria-Hungary, $1,600,000 from the United States, $1,083,238 from the United Kingdom, $994,113 from France, $401,293 from Italy, and $707 from Canada. The total trade for the last year of the quinquennium was $1,949,422.

Much of the importation from the United States consists of office furniture, of which very large quantities have been purchased in recent years, particularly desks, both flat and roll-top; oak tables also account for a fair amount of business. From France comes the ornate furniture that is so dearly loved by a large proportion of the rich class; articles gilded, elaborately carved, showily upholstered, and not infrequently fantastic in shape and appearance. Italy sends a cheap class of goods that suits many of the people who migrate from that country, and also drawing room furniture.

### Opportunities for Canadian Manufacturers

If there be a manufacturer in Canada who has thoughts of extending his trade beyond the shores of the Dominion, it would be greatly to his advantage to study the openings presented to him by this highly valuable purchaser, particularly as it is so steadily an increasing one. The average annual importation for the quinquennium ending 1909 was about $1,515,000, but in the final year the figures show it to have been $1,949,422, which must be a very large gain over the first year of the period in question. A further expansion was shown in 1910, the trade in that year reaching to $2,406,695, or $458,013 more than the previous one, and this development is apparently still continuing, for the republic purchased abroad no less than $2,709,156 worth in the twelve months just passed. This shows a healthy state of trade and one likely to continue, certainly so far as this year is affected, as when the returns are all in, there stems no reason to doubt but that the agricultural season of 911-12, approaching a close with the harvesting of a huge maize crop, will have turned out to have been a highly successful one.

### Office Furniture

The Dominion cannot compete with France in the ornate furniture, nor with Italy in the class of goods which she exports, but with the United Kingdom, the United States, and to a certain extent Austria, she can. The office furniture and oak tables, in which the States are deriving so lucrative a trade, is made in Canada equally well. The senior partner of one of the firms interested in such goods stated that if he could purchase office desks in Canada to compete with those from the United States, he would practically guarantee to take 300 per month. There would be no need so change the styles in any way, as United States office furniture is the model for this country.

### Dining Room Furniture

At the present time oak is the wood that is most in favor for dining room furniture, each article being made of solid wood, veneering not being liked. Sideboards are about 1 m. 53 cm. wide, 2 m. 30 cm. high, and from 0 m. 55 cm. to 0 m. 60 cm. deep. It is customary in Argentina to have two sideboards in a dining room. The second should be a facsimile of the first, but to accompany the article described above, it would have dimensions of 2 m. 10 cm. by 1 m. 80 cm. by 0 m. 45 cm.

The tables and chairs used are of any ordinary type. The tables must have a screw at the end to extend to 10 feet. The English extension table having this feature sells well, but the lack of it keeps out the United States product.

In hall furniture, for which the demand is good, the hat stands are rather open looking affairs, with something of a grill effect; there are of course other patterns also.

Large quantities of chairs and settees are imported without upholstering, that part of the work being done locally.

The demand for Austrian bentwood chairs is huge, but the business is apparently controlled by one firm. It is possible if the Canadian product were actively pushed, that it might have a sale, although of course it would be met at the outset by strong opposition, founded to a great extent on the conservative characteristics of the people.

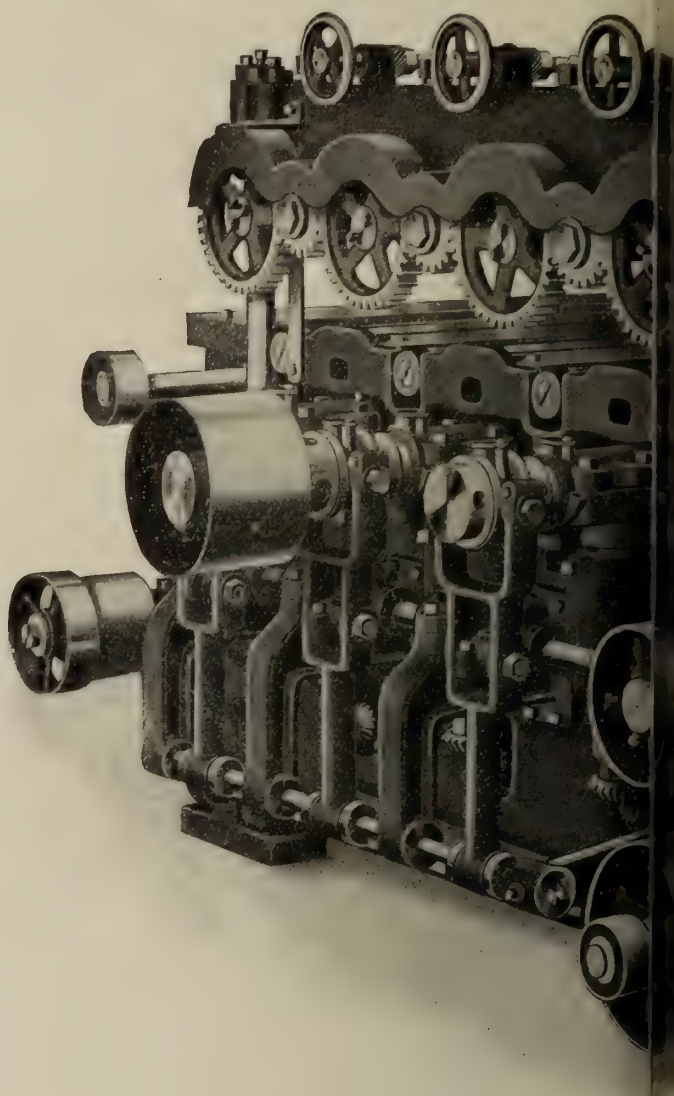
The furniture manufactured locally is commonly made of native cedar or imported pitch pine, the latter as a rule being waxed. It is said that this class is not satisfactory, having but poor lasting qualities.

### Packing Shipped Knocked Down

Furniture must be shipped K.D. (knocked down), the rule admitting of no exception. The pedestals of desks should be shipped separately from the tops. The marble tops of washstands, pedestals, &c., must be separated from these articles. A very good way is to put them in a lightly constructed case by themselves, but separated by sheets, and to place this in the middle of a large crate surrounded by soft resilient packing, and so braced that it will be impossible for them to move about and endanger the other easily broken goods.

Cases should be well made, of substantial material, to withstand rough handling, but this strength can vary with the usage likely to be encountered in the stowing, discharging and transhipping in the journey between factory and consignee. For instance, a case consigned to a firm in Buenos Ayres, would not require to be nearly as strong as one whose destination was the west coast of South America, where it might require to be transhipped into a lighter, in a heavy swell.

The proper course for a determined, progressive firm would be to experiment in packing. Employees could be encouraged to emulation, by prizes, the idea being to secure a maximum of strength and security for a minimum of weight and bulk, the latter particularly if the package has to go oversea. The cased goods should be subjected to severe tests, such as dropping from a height to fall on the ends, sides or corners, banging against a wall, as so often happens with cases when being slung from the ships' holds, or into lighters.



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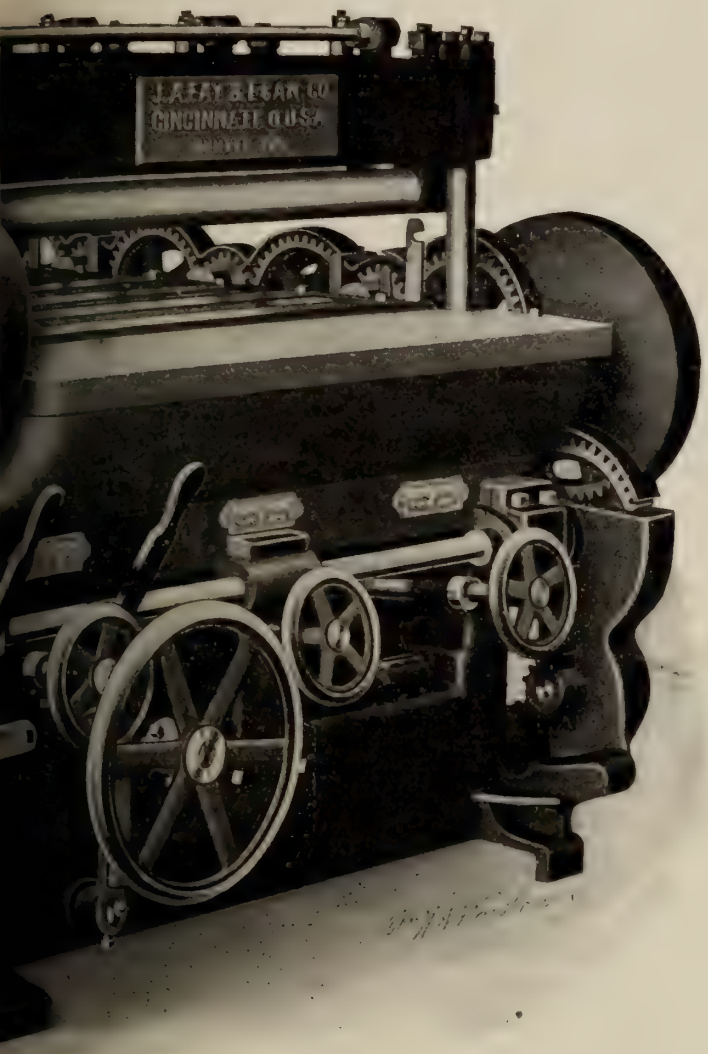


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### Opportunities for Foreign Trade

The following enquiries have been received from England and other countries relating to Canadian trade. The names of the firms and their addresses can be sucured by interested parties by writing to the Enquiries Department, Canadian Woodworker.

Any of our readers who are answering the enquiries should not fail to forward references—particularly if bankers references.

113. **Organs.**—A Birmingham merchant asks to be put in touch with Canadian firms manufacturing cheap organs.

114. **White pine.**—An importing firm in Buenos Ayres would like to be placed in communication with exporters of white pine and spruce in Canada. Quotations should be for sailing vessel cargoes, which should be comprised about as follows:—100,000 feet each of white pine, Nos. 5, 7 and 8, of unequal lengths; 200,000 to 300,000 feet of 12-inch white pine, of grades Nos. 5, 7 and 8; 200,000 feet, square, various lengths, and also spruce 'one side clear.' For particulars apply to Department of Trade and Commerce.

115. **Wooden handles.**—A strong and old-established firm of importers in Buenos Ayres desires to receive quotations c.i.f. Buenos Ayres, for all kinds of wooden handles. Any information likely to be useful should be added.

116. **House and office furniture.**—A strong and old-established firm of importers in Buenos Ayres, desires to receive quotations c.i.f. Buenos Ayres, for house and office furniture, particularly chairs. Any information likely to be useful should be added.

117. **Furniture.**—A Newfoundland firm desires communication with Canadian manufacturers of furniture.

118. **Wood turnings.**—A west of England firm makes inquiry for the names of Canadian manufacturers of wood turnings such as dowells, spindles, legs for chair work, and wooden wheels for toys.

119. **Pine boards.**—An old-established firm of timber merchants are anxious to get in touch with Canadian exporters of pine boards. Will purchase direct. 1st, 3 x 12 and up, lengths 10 ft. and up. 2nd, 3 x 8 and up, lengths 10 ft. and up.

120. **Pine sidings.**—Manchester timber merchants will buy direct pine sidings. Request communication.

121. **Timber agency.**—A long-established firm in timber, dealers now representing large Norway and Russian dealers in Manchester, requests correspondence with view of agency.

122. **Wheelbarrows.**—A strong and old-established firm in Buenos Ayres desires to receive quotations from Canadian firms for wheelbarrows, iron and wooden. Prices must be c.i.f. Buenos Ayres, and any information likely to be useful should be added.

123. **Tools.**—An old-etsablished and strong firm in Buenos Ayres desires to receive quotations from Canadian firms for tools of all kinds, including saws and files. Prices must be c.i.f. Buenos Ayres, and any information likely to be useful should be added.

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### Norway Imports More Lumber Every Year

In earlier years it was something unheard of, that Norway should import lumber. On the contrary lumber has been one of Norway's most important exports; but now it is otherwise. The wood pulp mills increase in number every year, and the demand for raw material consequently also increases considerably, so that the Norwegian forests can no longer furnish the necessary raw material for all these mills.

The forests could, at least for some years yet, stand such an increased cutting of lumber, but they would thereby be spoiled for all future time. The result is that the lumber prices are at present so high that it does not pay for the Norwegian mills to take their supply from Norkegian forest owners.

The imports of lumber into Norway really commenced in 1908, when 12,800 cubic metres were brought in; but since 1909 they have gone rapidly up, as will be seen from the following figures:

From Finland and Russion Baltic ports there were imported:

In 1909 ... ... ... ... 172,590 cubic metres
In 1910 ... ... ... ... 294,530 cubic metres
In 1911 ... ... ... ... 556,510 cubic meters

At the same time there was imported from Sweden:

In 1909 ... ... ... ... 151,820 cubic metres
In 1910 ... ... ... ... 178,784 cubic metres
In 1911 ... ... ... ... 222,370 cubic metres

In all there were thus in 1911 imported 778,880 cubic metres of lumber to a value of about 2½ million dollars.

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### A Valuable Wood from the West Indies

One of the best timber trees of the West Indies is the Sideroxyln densiflorum,—Baker. This tree is locally known as azeitona, which means olive. It grows on practically all the islands in the Lesser Antilles, but is found chiefly on the higher elevations, but very rarely in the lowlands. In its natural state it is a tree of very considerable proportions. The largest specimens are found in the southern part of the Island of St. Thomas, where individual trees occasionally measuse about one hundred and twenty feet in height and as much as six feet in diameter. In the northern and central portions of this island they are smaller, and the average size does not exceed ninety feet in height and three feet in diameter.

The wood of the azeitona is of an excellent quality, and is considered one of the best of Phillippine woods. It is heavy and durable, and has a dark yellow color with a reddish tinge. It, however, is not lasting when placed in contact with the soil, though in water and in the air its lasting qualities are excellent. The wood when air dried has a weight of about seventy-one pounds per cubic foot, and its specific gravity is 1.145.

While not easily worked, it is used considerably in carpentry work. When made into furniture and finished naturally, it has a beautiful appearance. The wood is employed by wheelwrights, and is also used in making all kinds of farm implements and for ship building. Considerable quantities of it are cut for piling and also for studding and cross beams in house construction. Charcoal of excellent quality can be made from this timber. Its sale in the West Indies is based on cubic meter, it bringing from $50 to 90. As a rule there is no over-abundance of the azeitona on the local markets in the West Indies.

On some of the islands of the Lesser Antilles, the natives call another tree azeitona preta, also pau preto and po pleto. This is also a large tree which often attains a height of ninety feet and a diameter of four feet. It is most abundant in the southern part of St. Thomas and in the forests of most of the smaller islands. The wood is not durable and can be used to advantage only in interior finish.

# The Methods of Two Table Factories

I have in mind two factories making about the same grade and line of parlor and library tables. One factory bought several grades of quartered oak, to be cut into the different parts of tables. The better grade was cut into tops, which was all right if it had been worked right. The stock-cutter aimed to get clear stock regardless of figures, and the ripper did the same. It was then jointed and glued, regardless of figure or face side. The planer man was required to watch for the best face and make it finish, consequently the boards were not matched for figure, and some figured on one side, while joining ones were good on the other. Some showed defects on one side and some on the other, and it was difficult to find a top that was anywhere near perfect. Such defects as were allowed to pass went through the cabinet room and were finished in their defective condition. Small parts, such as brackets and trimmings, were cut out of waste, regardless of quantity, and bushels of them found a place under the boiler, long after that particular pattern had been thrown out.

Later on it was their aim to get out orders or lots in certain quantities, with an allowance of 10 per cent. for defects before the table reached the cabinet room, at which place the parts were counted and the overstock or odd pieces deducted from the next cutting order. It was not long til the cabinet room was an awfully jumbled-up place.

The proprietor of this factory had begun business on a very small scale, making novelties, and the foreman had begun with him about that time. Neither had experience in furniture-making, but both being natural mechanics, they made good, and the factory grew into the table business referred to. But had they known how others were doing things it would have been a great benefit. Howbeit, much work was done awkwardly and at a disadvantage. And permit me to say here that many a young fellow, drifting from one factory to another, and not considered worthy of a position of trust, can show many a good foreman better ways of doing things.

This factory of which I speak glued all its ply with handscrews, and for some work used retaining clamps. The narrow strips, such as table rails, were not faced before planing, and some of them were greatly warped and bower, making the sanding very difficult. Strips were all sized with a saw, though they had a good sticker. The foreman did not care to read trade journals and thought experience the only good teacher.

Did this factory make money? Yes it, did. It was the only factory in the place, and men lived there who owned their own homes. They had worked in the mills when forest timber was plentiful. They were good workers and worked for little more than half what city factories were paying. Besides, living expenses were low and common lumber was cheap. The proprietor was a good manager, a good office man and a good salesman.

The other factory also bought several grades of quartered oak, but did not necessarily use the best grade in all its table tops. Each grade was cut for what could be gotten out of it. They got many a finely-figured top out of No. 1 common and found just as fine a figure as in the first and seconds. They faced all the lumber from the stock cut-off, taking it out of wind and exposing the figures so as it could be properly matched (the best side being faced always). Each top was matched in like figure, and one good side was all that was absolutely necessary. The stock was jointed so that when glued the face side would be slightly crowning. The reason for this was, it would draw down to the bed and make a better pob. If defects were on the back or bottom side it did not matter. In this way fine tops were often produced from cheap grades. Of course, for large tops and high-priced goods the best lumber was used, but even in that many small defects passed and the cabinetmakers repaired them so they would take a good finish.

Everything was faced—that is, taken out of wind—before gluing or sizing in the smoothing planer, and all strips up to 10 in. wide went through the sticker after being jointed one edge. Exact quantities were cut, and if while being worked a piece was found defective, it was repaired at once or another one gotten out to take its place. Thus when a job went to the cabinet room there were just enough pieces ofeach to put up the required number.

This factory paid fairly good wages, but owing to the better management it was the most prosperous of the two. What I have endeâvored to show is, one factory made better goods from low-grade lumber than the other did from high-grade.

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### Belts and Laces

By H. Watson

Some of the commonest things around the shop have points that worth studying if we would give heed. There is no question that is so much discussed and yet has so many different sides to it as that of the proper way to lace a belt.

Personally, I do not like lacing at all; that is, rawhide lace leather. Still, there are some places where nothing else will hold, and we have to use it or do without. Thn, the boss may have this idea about it: one must lose lacing or buy his own fastenings. But it was for men to find out that I did not know all there was to know about the commonest form of lacing in existence. I refer to the common "shoemaker" lace—a single row of holes on the end and a row behind it and just lace in and out, and stop the end any way you could.

That sort of lacing always gave way on me too badly, and I took time to make the more complicated but stronger "double-hinge" lace. In making the single-hinge lace I had always started it like the double-hinge, entering from one side always on the hinge part. In the single-hinge this method always made the joint set a little crooked, even with great care in doing the work.

Having to patch up a lot of old belting, and all of it being punched for single-hinge lacing, I tried the experiment of lacing from one side on the first stitch and returning from the opposite to make a flat stitch, instead of a hinge for the first one. This held the ends of the joints square and prevented it from pushing one-sided, as it had always done for me. When the joint was completed I returned the lacing through the holes in and out across the one side, and crossed over and did the same on the other side, to protect the ends from wearing, and had a pretty decent-look-

ing job. After a week of hard wear none of the joints showed any sign of letting go.

This form of lace is the easiest to make, and the quickest, and when made this way is as straight as any other and so simple that any of the hands around the mill can make it, once the belt is cut to the right length and punched for them; and in an emergency they can punch the holes, too.

I have not made any discovery for lots of others have been doing this same thing all the time, only I did not take the trouble to see how it was done in a proper way, and so I have let many an easy job get away from me because I was too prejudiced to take note of the proper way. Perhaps someone else is doing the same same thing; that is why I mention it, as a hint to save them some of the lost time in making the double-hinge lacing. At the same time, if I had a driving belt or a heavy belt of any kind to lace, I would still use the double-hinge lace, and holes large enough so the fibre of the belt is not torn in drawing the lace through it.

### Hardwood Flooring and the Retailer

In looking over some catalogues issued by the catalogue houses and sash and door plants, it is quite astonishing to note the space that is devoted to hardwood flooring. They feature all grades, all faces and thicknesses with appropriate illustrations. It is no wonder that these concerns are getting a large share of the hardwood flooring trade from the consumer. It stands to reason that any prospective consuming buyer would order from the concern which carries the largest variety of grades. These jobbing houses, and indeed they are jobbers in every sense, send their catalogues all over the country, and have follow up systems that eventually secure business for them. Now if the retailers would make some effort in their respective towns along the line of that adopted by the catalogue houses, they could overcome, to a large extent, the evil of having consumers purchase their flooring from out of town houses. The average retailer sends very little advertising matter to those who are contemplating building. The local newspaper gives the building permits, the owners' names as well as the contractors.' Considerable business could be developed through this medium which is very often neglected.

The average home builder usually makes a study of the different kinds of material which go into a house, and usually finds out that there are more than one grade and kind of hardwood flooring. It would be well for all retailers to familiarize themselves a little on the different grades. Some one of the various grades is adaptable for any class of building construction, and the retailer could aid the contractor as well as the consumer in advising which grade would be the most adaptable for certain rooms or houses. Very often it is found that clear plain oak is utilized in a class of buildings which are put up for investment, where the select plain could be utilized equally as well at a saving of twenty-five per cent. The select plain, in either the 13/16 or 3/8 inch thicknesses, after receiving a golden oak filler, makes an appearance that would be difficult to distinguish from the clear plain (first grade).

Very often it is found that clear plain and select plain is used in rooms downstairs, No. 1 common on the second floor and often the factory grade is used as the floor for the attic. Unless dealers take a decidedly more active interest in posting themselves on the grades and pushing hardwood flooring, they will undeniably lose considerable trade to the catalogue and sash and door houses coming into their territory. Even department stores are now selling parquetry flooring, which has been brought about by lumber dealers not carrying a stock of this kind. There are but a few homes and apartment buildings that have not used hardwood flooring in some part, and it offers a splendid inducement to the carpenters and professional floor layers. A little canvassing on the part of the contractors or carpenters during this season, prompted by the retailers, would find considerable work along this line. Quite a number of floor laying concerns have sprung up in different parts of the country within the last few years. They make a specialty of laying all kinds of hardwood flooring and usually do good work. There is a splendid opening in all cities for concerns of this kind, and retailers can do a good deal towards the sale of hardwood flooring if they would encourage and aid such concerns.

### The Difference Between White and Red Oak

Foresters and manufacturers of oak lumber, divide all the oaks into two distinctive groups—the white oak (quercus alba) and the red oak (quercus rubra). The red oak requires two years to mature its acorns and the white oak but one year.

The woods of the two groups are structurally different. In physical structure the white oak is of much denser texture than the red oak.

The white oak for flooring purposes is preferred, as it receives and holds a higher polish, and is considered the most durable and satisfactory.

The red oak is now much more abundant than the white oak. It grows faster—thus it is more porous and is generally regarded as inferior in strength and toughness to the white oak when made into flooring. However, both varieties make a floor of unqualified excellence.

### Some Shop Pointers

In removing bolts from machinery never strike the bolt on the end with a hammer if it can be avoided, for the end will be swaged and you will have trouble in starting the nut. Put something soft, lead or babbit or hard wood, against it and strike with a hammer.

To extract the end of a broken handle from a hammer, axe or similar tool, don't heat it, but simply take a drill or bit as large as you can pull through without striking the metal at the sides, and bore a single hole; then with a narrow chisel cut out a groove, like a keyseat on a pulley, on each side, dividing the wood into two pieces, which can then be easily driven or chiseled out.

Do not deceive yourself into thinking you are making yourself forceful or great by using bad language. Keep one eye on your fingers at all times. Don't try to watch the boss and your work at the same time.

Because the other fellow knows how to do things, is no reason why you can't learn to do the same things even better. A swelled head is a grand asset, providing it is swelled from brain development by study.

Do unto others as you expect them to do to you. He who respects the feelings of only a few selects is only just the shell of a man.

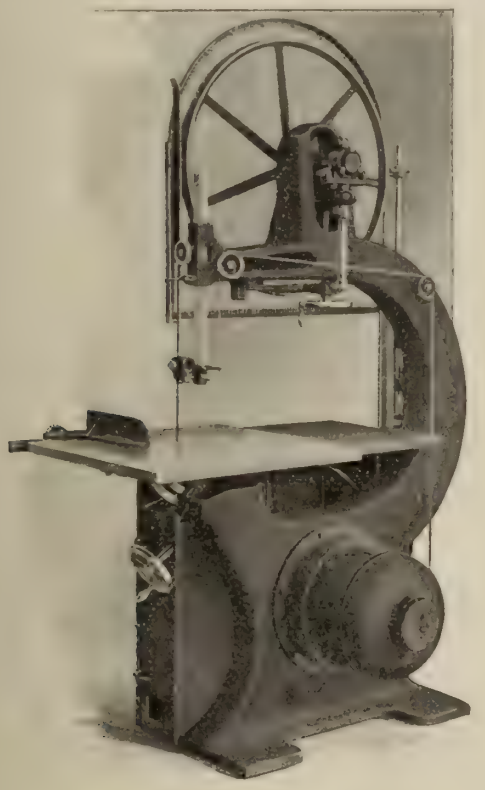
Shoulder your own mistakes. If you try to shirk them you are liable to stub your toe, and God only knows where you'll go. Don't try to take anything from the fellow who knows it all, for you'll probably be disappointed.

# Amongst the Machinery Men

### American New 36-in. Band Saw

The "American" Band Saw fitted up as shown in the illustrations makes a most perfect and efficient equipment. The wire guard for the upper wheel and the closed doors for the lower eliminate the possibility of danger.

Ball-bearing of the most approved type applied to both wheels insure a remarkably easy running saw—a thing very essential in a tool of this kind.



Direct connected motor with rheostat mounted on the machine itself provides the most efficient method of driving a band saw—no belts, no lost motion, very little power in comparison.

Patent weighing strain to upper wheel with indicator for adjusting weight to different widths of blades relieves the operator from guesswork in adjusting, and saw blades from cracking or breaking.

Micrometer adjustment to the table with accurately graduated scale insures the power tilt in either direction—45 deg. to right—5 deg. to left.

More detailed information can be had, also a photograph and full description of the machine by addressing the American Wood Working Machinery Company, Rochester, N.Y.

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### Store Fixtures—Fittings

Canadian manufacturers of store fittings, as well as show-case makers, are constantly on the lookout for metal specialties of a high grade that will serve to enhance the appearance of the their products. The catalogue just issued by the Reflector and Hardware Specialty Manufacturing Co. is fully illustrated, and shows a complete line of metal fittings, embracing the latest styles in hinges, locks, brackets, etc., as well as show case reflectors, metal moulding and corners. This catalogue will be sent on enquiry to The Reflector & Hardware Specialty Manufacturing Company, Chicago, Ill.

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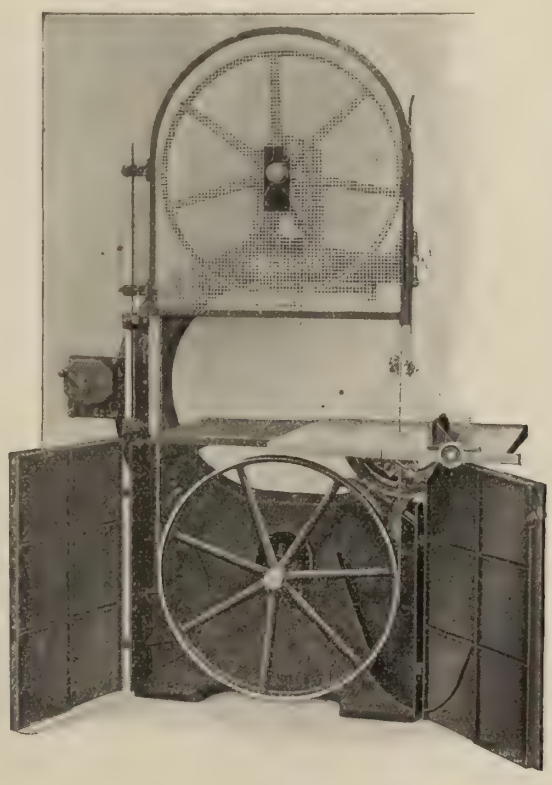
### Explaining Horse-Power

In connection with steamship propulsion the average man is apt to speak very glibly of so many hundred or thousand horse-power. But it is extremely doubtful if one person in a hundred really has a due appreciation of what the phrase actually means. On this point some very interesting remarks were made by John Heck, the Glasgow engineer surveyor.

He said that, calculating the strength of twelve men to be equal to one horse-power, it would require 840,000 men to produce as much energy as the 70,000 horse-power developed by the turbine machinery of the express Cunarder Lusitania. Then if the men were to work on the eight hour day system, those figures would give a total of 250,000, that being the number of men whose strength would be necessary to drive the vessel across the Atlantic ocean. So, it would take all the men in Scotland to supply the energy produced all the day round by the wonderful turbine machinery of this great ship.



Rough factory floors and heavy-running trucks are out of place in the modern factory. They are also money-wasters that should be sent to the junk pile just as promptly as the old worn-out machines.

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It may not be possible to prevent all accidents, but it is practical to prevent a lot of them by installing proper safeguards and exercising due care.

# A Substitcte for Pencil Cedar

At a time when our principal pencil wood is practically exhaused, a discovery of another suitable wood tending to relieve this state of things is a boom difficult to overestimate. The properties of the native pencil cedar which includes the northern red cedar (Juniperus virginiana) and the southern form (Juniperus barbadensis) are so marked, and so different from those of other commercial woods that it seems almost hopeless to find a satisfactory substitute. Other native species of the genus Juniperus yield woods nearly similar to the regular pencil cedar, and they have all been tested for use in the pencil industry. While these woods have not given entire satisfaction a good deal of the available supply will eventually be used for making pencils.

There is no other wood-using industry in the United States so dependent upon a single species as the pencil industry is upon red cedar. The scarcity of the pencil material will soon be felt also in Europe. A single firm in Nurnburg, Germany, makes annually over 300,000,000 lead pencils out of the American cedar. About 100,000 tons, or 7,500,000 cubic feet, of wood are required for making these pencils. An equal amount is consumed annually in the United States in the pencil industry alone. This makes a total consumption of over 200,000 tons or about 1,-500,000 cubic feet of wood annually, or a little over 600 tons of cedar wood are used for pencils each day in the year. How long the supply will last at this rate of consumption is difficult to say, but it is certain that unless a suitable substitute is introduced some of the mills now in operation must shut down inside a few years.

The requirements for wood used in the pencil industry are most rigid. The wood must be soft, light, strong, close and straight-grained, free from defects, and must not check and warp. The physical properties of cedar are subject to considerable variation due to soil and climatic conditions, and for this reason it must be carefully inspected and graded as to quality. The lightest and softest wood is produced on the swampy humhocks of Georgia and Florida. The older the tree the softer and better the wood becomes. The wood of the shell of rotten logs is said to be the best for making pencils. The hard flinty wood such as is obtained principally from trees on dry upland or near its western limit of distribution is considered a poor grade.

Pencil makers both in this country and abroad have long since been searching for a suitable wood to take the place of cedar, and an announcement has been made that a substitute was discovered in East Africa which may be obtained in sufficiently large quantities at a reasonable price. In Europe this announcement was accepted at its face value. In America the pencil makers prefer to wait, pending more exact information, for fear that this discovery may share the fate of many others which under the rigorous tests of quality, amount of available supply, and cost of production, have failed to realize the anticipations formed by them, or even to establish a claim to commercial value. There can be very little doubt, however, in the case of the wood from East Africa, because it is known to be a very good wood, and pencil makers in Europe have tested it and found it to be an excellent substitute for the American cedar.

The introduction of a new wood is usually very slow, and the promoters and exploiters of strange woods frequently score heavy losses, although the kinds they import are good and useful. This East African cedar is now being imported into Germany, and it is likely that it will soon be used in this country. The tree which yields this wood is very closely allied to our pencil cedar and is known botanically as Juniperus procera. It forms a beautiful tree from 75 to 125 feet in height and from 2 to 4 feet in diameter. Scalter, an English naturalist, states that in British East Africa the trees frequently attain a height of 200 feet and a diameter of 6 feet. East African cedar is distributed over the mountainous regions from Abyssinia southward into German East Africa, and is found in great abundance around Kilimandscharo. It is best adapted to a region at an elevation varying from 4,500 to 9,000 feet. In Usambra it forms open forests just above the meadow land. Farther inland, especially in the Kenia region, the cedar forms pure stands and is present in such an abundance that practically all travellers through this territory describe it as one of great promise for export after better transportation facilities are provided for within the cedar belt. That the wood is of great practical importance is well known to all who have made a study of German East African timbers. Schimper, in his book on plants of Abyssinia, remarks that it is one of the most valuable timbers for a great many purposes. It also contains and yields a very valuable resin.

Similar to our native cedar, the wood is soft, light, durable, easily worked, highly scented, of good color, uniform texture and fine grained. The annual rings of growth are indistinct to the unaided eye. The surface exposed by cutting the wood with a sharp knife is very smooth and has a satiny lustre. These are facts which will place this wood on a par with the American pencil cedar, not only in the manufacture of lead pencils, but for other purposes requiring especially fine-grained and durable wood.

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### Multiple-drum Sanding

To just what extent may the drums in a sanding machine be multiplied and how much does each additional drum improve the character and capacity of the work? These questions may be agitated now, because there are being offered in the market new sanders, built with twice the number of drums as in the old type of machines.

Primarily, the drum sander was a single-drum concern, and lots of single drums are still used. It was found difficult to finish off neatly with one drum, so others were added, until what was recognized as the standard machine had three drums, one coarse, one medium and one fine. This was admittedly a decided improvement on the regular single drum, gave greater capacity to the machine and insured a smoother finish. Now we have quite a radical departure in the offering of six drums instead of three, and it raises the question of how many drums are useful and to what extent can this series of drums be extended advantageously.

We have learned that successful sanding involves taking light cuts and repeating the work. The multiple-drum sander not only enables one to take light cuts in proportion to the number of different drums,

but also furnishes facilities for graduating the sandpaper, getting it finer and finer on the succeeding rolls, until the last one gives a very smooth finish, provided, of course, they are all so carefully adjusted that each performs the work it is intended to do.

Multiple-drum sanding, when we get beyond three, is getting it down pretty fine, but it is in line with the development of the past few years in sanding machinery generally. It will, however, call for pretty delicate adjustment, and there will probably develop many interesting points of discussion, both as to the manner of adjusting the series of rolls and how many rolls in a series can be used advantageously.

### Popularity of the Fir Door

The enterprise shown by J. Hanbury & Company, Limited, in establishing in Vancouver a factory with a capacity of one thousand doors per ten hours, would seem to warrant more than passing mention, in view of the fact that heretofore most of the fir doors used by the builders of British Columbia and the prairie provinces have been shipped in from the United States. The new factory is equipped with the most modern labor-saving machines, including several of new design, the patents for which are controlled by the company.

Until half-a-dozen years ago practically all the doors manufactured in the United States were made of pine, spruce and cedar lumber, but during that period a great change has taken place owing to the introduction of the fir door by the manufacturers of the Pacific Coast, and the immediate favor accorded it by builders and the general public. The fir door has displaced in large measure every other make on the market, and last year hundreds of thousands of this class of door were shipped from Oregon and Washington factories to dealers in the Atlantic States. On this side of the line manufacturers of this line look for a somewhat similar experience. A few years ago the British Columbia and prairie trade favored the cedar door but the demand has steadily changed, until to-day no builder would feel inclined to challenge the prediction that the fir door has come to stay.

It can truthfully be said that because of its durability and beauty of grain no other wood can compare with fir as material for a moderate-priced door. Very few woods will take the staining and treatment fir is capable of, and if finishers would give the fir door one-half the care they bestow on the oak door, there would be few of the latter specified by architects and builders. A few years hence the Canadian Woodworker hopes to be able to record that the British Columbia fir door is in demand from coast to coast, and that it can be shipped to any part of the world at a price that will compete with any other door manufactured in the United States or elsewhere.

### Loss of Power in Factory

In addition to clumsy and badly arranged methods of transmission a very considerable loss often arises from the employment of pulleys too narrow on the face to remit the required power with ease. The object of this was probably in the first place to reduce the cost of belting, but this was very false economy, as narrow pulley faces often mean tight and strained belts, with increased slip and wear on both sides and bearings, and any small saving in first cost is very soon dissipated.

In addition to line shafting, the pulleys on the older woodworking machines are in many cases too small in diameter and width; consequently, the belt contact is insufficient, it is impossible to keep the machines up to the standard speeds, and the writer has often increased the sizes of these with great advantage. If, however, the sizes of the pulleys cannot be conveniently altered, their driving power can be considerably reduced by covering them with leather.

### 400,000 Immigrants

According to an estimate made by officials of the immigration branch of the Interior Department the immigration next fiscal year will reach the total of 400,000. This estimate is based on the percentage of increase in the year just closed.

### Winnipeg Planing Mill Burned

Brown & Rutherford's planing mill of Winnipeg, formerly of Galt, Ont., was destroyed by fire. While the loss is considerable it will not by any means cripple the firm, whose resources are large and capacity for overcoming obstacles of the sort that sweeps away difficulties.

### Latest Word from Drives

Word received here from Van Buren, N. B., states that Mr. A. W. Brown, of the St. John River Lumber Company, has been in communication with Seven Islands and says that Morrison's drive is within one mile off the Island, the Noble drive within two miles and Kilburn's drive is within six miles of the Island. The drives are coming down quite rapidly and have about forty-five miles further to go before they get in with the corporation drive.

### A Magic Match Producer

A log of wood and a roll of paper are placed in a new match making machine, and when human hands next touch the material it is all bound up in packages containing one gross of boxes of matches, ready for the consumer. During the process the machine cuts the wood into proper lengths, sulphurs the ends, counts them, makes the paper boxes, prints the labels on them, fills each box and packs them. The machine has been patented by a Norwegian match company.

### Felling Trees with Wire

The axeman is being put out of business in the forests of Germany by the introduction of a new method of felling trees by the friction of a steel wire, which is able to work its way through a twenty-inch tree in about six minutes. The wire is drawn rapidly about the tree and the heat generated by the friction is sufficient to burn a thin carbonized kerf, which is both smoother and cleaner than the cut of a saw. The charcoal layer adhering to the trunk is extremely thin and allows the structure and any disease of the wood to me distinctly recognized. There are many advantages in this method, notably, no waste, decreased labor, absence of all apparatus usually required, and the machine can be used in close quarters not sufficient for men choppers.

A little knowledge may be a "dangerous" thing, but it is almighty handy on occasion.

Shop economy is a theme that is preached more persistently than it is practiced.

### Building Permits for April

Ptrmits for buildings valued at $20,689,200 were issued in 33 Canadian cities in April, says the Financial Post of Canada. The value of the structures is 44.5 per cent. in advance of the value of buildings for which permits were granted in April, 1911. The total is only about three million dollars less than the combined returns for January, February and March.

Toronto, although showing a decrease as compared with April 1911, heads the list with permits to the amount of $2,842,995. Eight cities are above the million mark. The figures are as follows:—

| | | | |
|---|---|---|---|
| Ottawa | $ 457,000 | $235,125 | 106.0 |
| Montreal | 2,314,021 | 602,050 | 35.2 |
| Toronto | 2,842,995 | 429,823 | 13.1 |
| Kingston | 95,625 | 57,830 | 153.0 |
| Chatham | 22,650 | 17,150 | 311.8 |
| Hamilton | 867,000 | 242,850 | 38.9 |
| Berlin | 123,793 | 6,710 | 5.7 |
| Windsor | 141,035 | 56,275 | 66.4 |
| St. John | 39,800 | 39,100 | 49.6 |
| Halifax | 26,250 | 15,100 | 136.0 |
| Guelph | 34,786 | 13,736 | 65.3 |
| Brantford | 281,655 | 22,090 | 357.5 |
| London | 206,730 | 74.396 | 56.2 |
| Maisonneuve | 302,238 | 288,498 | 372.0 |
| Port Arthur | 84,560 | 15,960 | 22.0 |
| Victoria | 514,850 | 234,740 | 83.8 |
| Moose Jaw | 1,004,250 | 759,207 | 309.8 |
| Calgary | 1,708,380 | 581,124 | 51.6 |
| Prince Albert | 437,400 | 175,045 | 169.4 |
| Nanaimo | 18,350 | 1,750 | 10.5 |
| New Westminster | 154,360 | 53,410 | 52.9 |
| North Battleford | 94,270 | 60,200 | 176.7 |
| North Vancouver | 59,685 | 8,580 | 16.8 |
| Regina | 663,145 | 100,655 | 17.9 |
| Saskatoon | 1,485,700 | 266,060 | 21.9 |
| Nelson | 76,100 | 29,120 | 62.0 |
| Edmonton | 2,103,170 | 1,744,143 | 485. |
| Winnipeg | 2,106,900 | 67,750 | 3.3 |
| Vancouver | 1,632,805 | 446,485 | 37.6 |
| Fort William | 238,325 | 27,190 | 12.9 |
| Prince Rupert | 31,230 | 9,180 | 41.6 |
| Medicine Hat | 369,715 | 334,403 | 947.0 |
| Lethbridge | 150,285 | 41,010 | 37.5 |

### Dearth of Houses

Lack of small houses, containing modern conveniences, to be had a medium rent, is one of the great drawbacks to Woodstock, Ont., at the present time, and is keeping families from coming to settle in the city. Further, it is keeping manufacturers from engaging all the hands they could use, as it is no use bringing men for whom it is impossible to provide a home. Steps are being taken this year to provide some of these residences, but more are still required.

### Busy Berlin

It is claimed that never in the history of Berlin and Waterloo have there been as many men and women employed as this Spring. Every factory in the two towns is working to full capacity and are adding to the number whenever possible. With the building trades as busy as they generally are in midsummer there is a scarcity of labor in some of the factories where skilled labor is employed, but their places are being filled up by an influx of recent immigrants. The chief difficulty experienced in the two towns is to secure homes and boarding-houses for newcomers. There has been a slight advance in the wage scales in the various factories.

### Novel Apartment House

This is the story of a novel family compact.

Some few months ago a widower remarried. He is a builder and a good one too, although he will be nameless here. His wife has three sisters, all married, and with families.

After the usual introductions to his wife's relations he began to notice that they were all dissatisfied with paying high rent or taxes and with all the other little inconveniences of owning or leasing a house in Toronto. And so the four families put their heads together and evolved a great scheme and the builder-husband is carrying it out. They are building a four-suited apartment house. They'll all live beneath one roof and yet each in his own home. They expect to save quite a bit in housing expenses by this scheme, which is a new one in the community idea.

### Two New Industries for St. Catharines

The ratepayers of St. Catharints, Ont., carried a by-law to bonus the Canadian Warren Axe & Tool Company, which will manufacture all kinds of axes and logging tools. The concern will be a branch of a similar factory now operating at Warren, Pa. The city agrees to purchase four acres of land for four thousand dollars, and hand it over to the company in fee simple. The firm agrees to erect buildings valued at $40,000 and to pay annually in wages $25,000. Building operations will begin at once.

The City Council of St. Catharines gave second reading to the by-lay to bonus the Reo Motor Car Company, which will be voted upon by the ratepayers on June5. The company buys twelve acres of land from the city for twelve hundred dollars, and agrees to erect buildings valued at one hundred thousand dollars thereon, and to pay seventy-five thousand dollars annually in wages. The city on the other hand, will grant a fixed assessment on the new buildings of six thousand dollars, and the same amount on the present factory, until vacated for the new building. The factory will give employment to 250 additional men.

### To Manufacture Automobiles

A new automobile company has been organized in Toronto by Messrs. Saunders & Allen. The company is capitalized at $200,000, and will engage in the manufacture of automobiles in a five-storey factory to be erected at the corner of John and Mercer streets, at a cost of $55,000.

They have secured an option on the Dufferin street premises of the Gasoline Engine Co., so that they might start manufacturing at the earliest possible moment. The first year's output will be ninety 1913 models of the six-cylinder improved type. With the exception of the frames, front axles and wheels, the cars will be exclusively Canadian. This will be the first attempt to build six-cylinder auto engines in Canada. A staff of French and American experts has been engaged, and it is hoped to make deliveries some time in September.

# OPPORTUNITIES

**Advertisements inserted on this page for "Positions Vacant" or Positions Wanted" twenty-five cents per insertion.**

Wanted—first-class cabinetmaker. 548 Yonge St., Toronto.

Wanted—Cabinetmakers wanted. Two first-class men: will pay highest wages to suitable men. The Crown Furniture Co., Preston, Ont.

WOODWORKERS—Wanted at once, those accustomed to machine work. Apply David Maxwell & Sons, St. Marys, Ont.

Wanted—Benchmen or cabinetmakers, also men for sash department. Apply at once to P. W. Gardiner & Son, Harris Street, Galt, Ont.

Wanted—Good handy men for hardwood flooring plant; steady work and good wages to right men; no boozer wanted. Apply The Seaman-Kent Co., Meaford, Ont.

Wanted A number of good tyers in hardwood flooring plant; highest wages; position permanent; married men preferred. Apply Seaman-Kent Co., Meaford, Ont.

CABINETMAKERS—Good bench men, also machine men wanted for interior fitting factory; $2.75 per day, state experience and if disengaged. H. M. Lickley, Limited, Gravenhurst.

**WANTED**

A lumberman or practical builder with 5 to 10 thousand dollars. A rare opportunity for a man of ability of either kind.

**Box 44, City Heights, Vancouver, B.C.**

**Wanted:--**

**Bench Hands**
**Sticker Man**
**Band Re Sawyer**

In a live Ontario town

Only first-class men need apply for these positions. Good money for right men.

**Box 2**

## Poor Work Caused by Carelessness

If the government should set its sharp-penciled exptrts to work, or if somebody with a fad for figures and dry facts should get busy in an effort to complete a record of the results of carelessness, it would furnish about the most starting array of figures and facts imaginable. There are probably more things, bad things, that ought not to be, chargeable to carelessness than to any other one trait of mankind. There is a well-known trade axiom to the effect that every accident is due directly or indirectly to carelessness, and to this we might add a long list of happenings not commonly termed accidents. At the present time, however, there are some specific results of carelessness in mind that may be given a little treatment all by themselves, in the hope that somebody may be inspired thereby to shake off a little of this certain kind of carelessness.

While looking over the work on a new house a few days ago, the writer pointed out to him numerous examples of the result of carelessness in putting together millwork. It was not carelessness in workmanship so much as in arrangement. For example, there was a door frame opening from a pantry into the dining room, which showed what is termed a catface in the wood on the dining room side. The wood was yellow pine and was to be finished "natural," with this defect, magnified by its position, staring one in the face. A little bit of thoughtfulness on the part of the man putting up this work would have produced different and more satisfactory results, because the defect could just as easily have been put on the pantry side, where it would hardly be noticed.

After noting this, and having the point in question illustrated by taking a trip through the house, an examination of the other woodwork showed other instances of the same kind, not only in door frames and casing, but also in stair work and various other parts of the house. When the attention of a workman was called to it, the only excuse he made was that they were little things which were seldom given much thought. In short, and to be plain about it, it was simply carelessness, and the results of this carelessness were defects in plain view, which might easily have been obscured by a little thoughtfulness, and the quality of the work in general considerably improved thereby.

It is the little things like these, the little pieces of carelessness, which in the aggregate go to make up the distinguishing difference between a really competent workman and one whose work never shows quality, though he apparently has the same skill as the other one. It is not merely in putting the work together, but every step in the process of milling; no matter whether it be mill work, cabinet work or what, there are always opportunities for the thoughtful and observing man to bring out the btst effects by keeping his mind on the work; whereas, if he gets careless and is concerned merely with the routine of going through the motions of his work and seeing that the machines do their work satisfactorily and don't run any hot boxes, and that he doesn't spoil the work by poor machining, his work soon shows the effect of carelessness. If there is a defect in the timber that is placed where it can do no harm, it is no longer a defect. On the other hand, through carelessness a difference of appearance in the work which would noto rdinarily be classed as a defect, may become a defect in that it mars the beauty of the work by the piece being improperly or carelessly handled.

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More than 60 per cent. of the railroad cars built in the United States this year will be of all steel construction.

# From Coast to Coast

### New Westminster Visited by Fire

The main factory of the Royal City Mill, together with two boilerhouses, landing platforms and docks, were burned early this afternoon. The loss will be in the vicinity of $100,000, fully covered by insurance. The blaze was spectacular, and it was a miracle that the planing mill was saved. The roar of the fire could be heard nearly a mile, and sparks showered the roofs of the houses all over the west end of New Westminster. The fire broke out at 2.15 o'clock, and it seemed that in a moment the whole place was ablaze. It started in the main sawmill, near the boiler room, and so quickly did the flames spread that the workmen say they did not have time to get their coats. It is supposed that it started by an emery wheel rubbing heavily in grease.

### United States Car Co. Coming to Canada

American capital to the extent of $2,500,000 has been put up to enter the car-building field of operations in Canada.

It is stated that the place selected for operations has not been finally decided on, but it will be either Montreal or Hamilton. The financing has been done entirely on the other side of the line, and Canadians will not be asked to put any cash into the enterprise. According to the current reports, the great development in Canadian railways and the big demand for rolling stock is considered as having been a fat thing for the Canadian companies in that line of business has attracted the attention of Americans in the same line of business, who were anxious to participate in the good things going.

### Lumber Mills Running

The big sawmill of the Keewatin Lumber Company of Kenora, Ont., commenced sawing on April 23rd. They anticipate a busy season, and will have a day and night shift during the season.

The Rat Portage Lumber Company of Kenora have started operations. Lumber and tie operators expect a busy season, and do not anticipate being interrupted owing to low water as last year, for the water in the lake is gradually rising.

### Loan $10,000 for Industry

Amherstburg, Ont.—The by-law for a loan of ten thousand dollars to the Two-in-One Auto Company, of Amherstburg, to be used in erecting suitable factory buildings, has been carried. The company was recently formed here, composed of local and Detroit capitalists.

### Lumber Market Much Depressed

Newcastle, N.B.—With lumber at present prices, lumbermen say they will no more than clear expenses this year, and if the drives are held up they will likely be on the losing side. The price of lumber is about $2.50 below last year.

### Wirled in Shafting

Whirled in the shafting of a sawmill in Kingston, Ont., and finally catching a beam to which he clung while the clothing was stripped from his body, Robert Wilmot, engaged in adjusting a belt, was rescued from almost certain death. All the clothing left on his body consisted of a pair of boots and a collar and tie. The man will recover.

### May Build Mill

Mickle & Dyment, lumbering firm with head office at Barrie, Ont., are considering the erection of a mill to cut logs on the site of Moore & Connell's mill at Fenelon Falls, Ont., which was burnt last fall.

### Crushed Under Lumber Wagon

Alex. Cudney of 71 Trinity street, a driver for the Reid Lumber Company, Toronto, was jolted off a load of lumber he was driving, and falling under the wheels was instantly killed.

### London Needs Carpenters

There is a bigger demand for carpenters in this city than it is possible to fill. The Ontario free labor bureau can place on jobs at once at least a dozen experienced carpenters.

### New Forest Inspector

F. K. Herchmer, Dominion lands agent at Dauphin, Man., has been appointed to the office of Chief Inspector of Forest Reserves in Manitoba.

The Ritchie Bros. and Fraser saw mills at Aylmer, Que., has started work giving employment to about two hundred men.

Mr. H. Willis of Cobden, Ont., lost all the fingers and the thumb of his left hand while working around a saw in Dempsey's mill there.

The Globe Furniture Co. of Waterloo, Ont., are contemplating an addition to their plant, to be used as warerooms. Work will start as soon as possible.

Mr. E. Goold, an employee of the Pembroke Lumber Co., Pembroke, Ont., was pinned under a falling hoist, and had three ribs broken and suffered internal injuries.

Farlinger & Macdonald of Fort William, Ont., have let their sawmill to Contractor Henderson for the summer months. Mr. Henderson will saw lumber and timber for this firm whenever same is required in connection with their various contracts.

The McDonald Thresher Co. of Stratford, Ont., will build a factory extension to cost $50,000. Three-storey, 50 x 120, stone foundation, brick construction, steam heating, electric lighting. Plans will bt prepared at once, and new equipment required.

Few of us have sufficient judgment to know at the outset of our careers the work for which we are best fitted. When we are misplaced the sooner we are displaced, the better. We can't learn where we belong until we discover where we don't belong.

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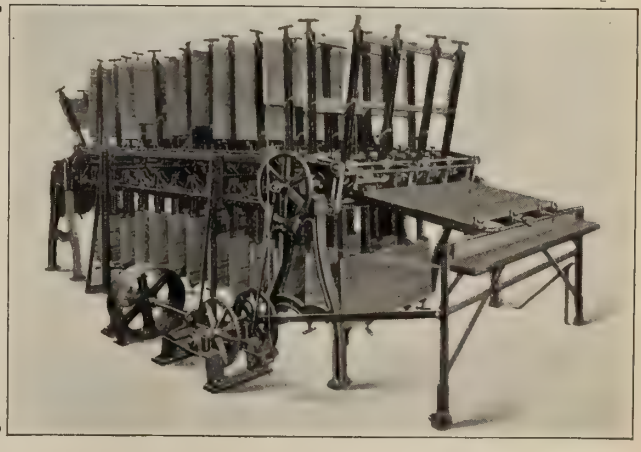

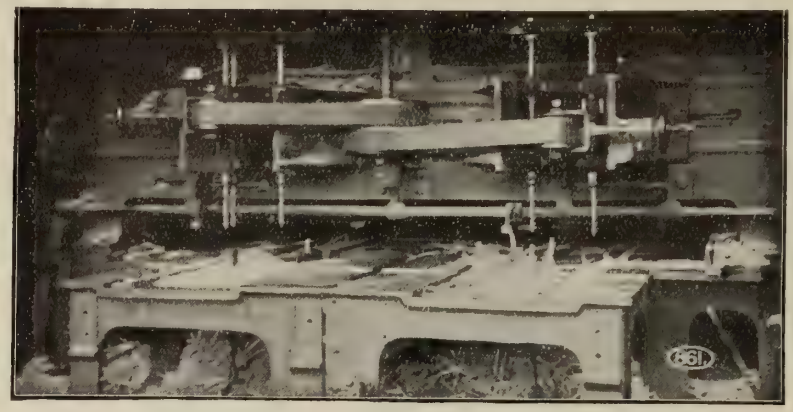

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Upper illustration shows leather belts driving an adzing and boring machine. Trouble was experienced with the belts.

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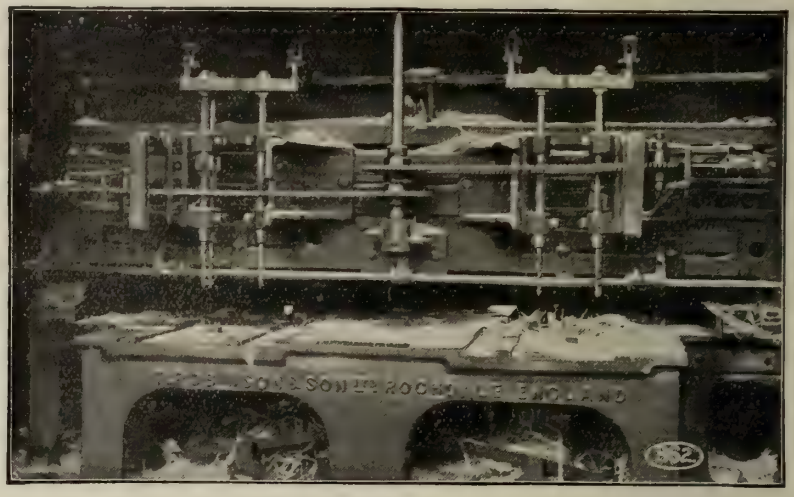

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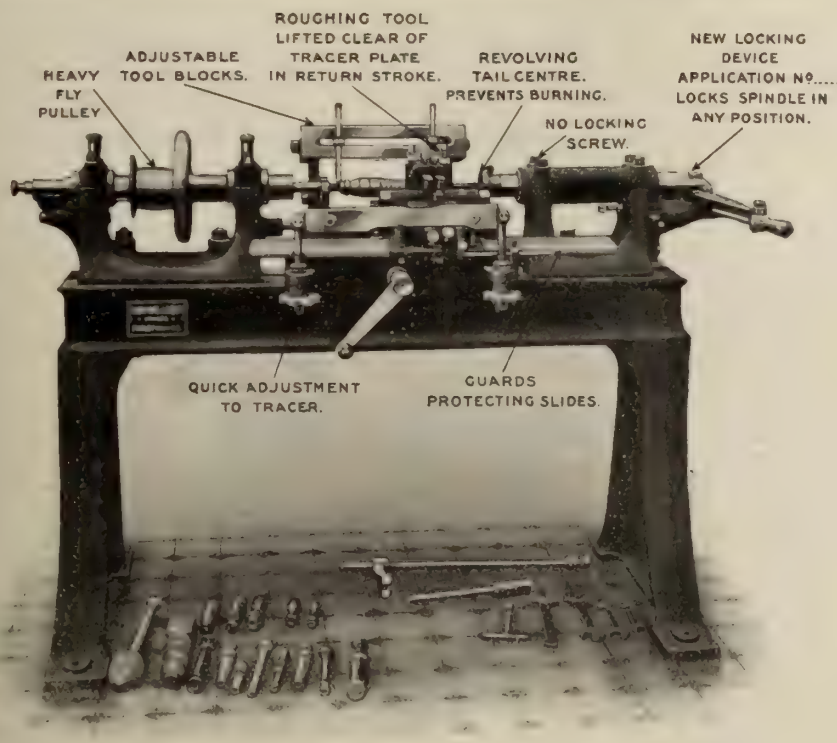


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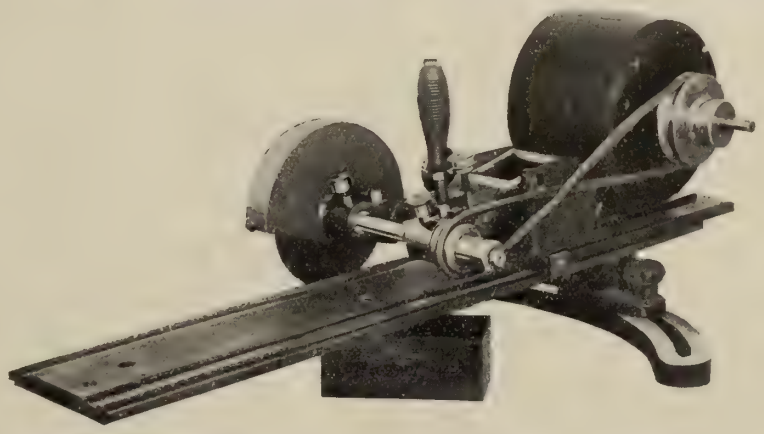

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E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

MITRE SAWS.
Shurly Dietrich Co., Ltd., Galt, Ont.
E. C. Atkins & Co., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Canada Machinery Corporation, Ltd., Galt, Ont.
Simonds Canada Saw Co., Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
E. & B. Holmes Machinery Co., Buffalo N.Y.
H. W. Petrie, Ltd., Toronto.

MITRE CLAMPS.
Black Bros. Machinery Co., Mendota, Ill.
H. W. Petrie, Ltd., Toronto.

MORTISING MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinatti, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Jones & Glass Co., Montreal.
Mussens, Ltd., Montreal.
Plessisville Foundry Co., Plessisville, Que.
Valley City Machine Works, Grand Rapids, Mich.
H. W. Petrie, Ltd., Toronto.

MOTORS.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.

MULTIPLE BOXING MACHINES.
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J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
J. M. Nash, Milwaukee, Wis.

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Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Baxter D. Whitney & Son, Winchendon. Mass.
E. & B. Holmes Machinery Co., Buffalo N.Y.
H. W. Petrie, Ltd., Toronto.

PICTURE FRAME MACHINERY.
Black Bros. Machinery Co., Mendota, Ill.
Canada Machinery Corporation, Ltd., Galt, Ont.
Hespeler Machinery Co., Ltd., Hespeler Ont.

PLANES.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler Ont.
Mussens, Ltd., Montreal.

PLANERS.
Berlin Machine Works, Ltd., Hamilton Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Baxter D. Whitney & Son, Winchendon Mass.
E. & B. Holmes Machinery Co., Buffalo N.Y.
H. W. Petrie, Ltd., Toronto.

PLANING MILL MACHINERY.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Samuel J. Shimer & Sons, Milton, Pa.
Baxter D. Whitney & Son, Winchendon, Mass.
Black Bros. Machinery Co., Mendota, Ill.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie Co., Ltd., Toronto.

PULLEYS.
Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinatti, O.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.

QUARTZ.
Wausau Quartz Co., Wausau.

RESAWS.
Shurly Dietrich Co., Ltd., Galt, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency Montreal.
Simonds Canada Saw Co., Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinatti, O.

Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

RIM AND FELLOE MACHINERY.
J. A. Fay & Egan Co., Cincinnati, O.
Canada Machinery Corporation, Ltd., Galt, Ont.

RIP SAWING MACHINES.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Canada Machinery Corporation, Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

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Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
J. M. Nash, Milwaukee, Wis.
Ober Mfg. Co., Chagrin Falls, O.
Fisher Sander Co., Berlin, Ont.
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Wausau Quartz Co., Wausau.

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Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Samuel J. Shimer & Sons, Milton, Pa.
Black Bros. Machinery Co., Mendota, Ill.
H. W. Petrie, Ltd., Toronto.

SAWS (Hand).
Shurly Dietrich Co., Ltd., Galt, Ont.
E. C. Atkins & Co., Hamilton, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
Simonds Canada Saw Co., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.

SAW MILL MACHINERY.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.

Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

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Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

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Canada Machinery Corporation, Ltd., Galt, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

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Baxter D. Whitney & Son, Winchendon, Mass.

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Canada Machinery Corporation, Ltd., Galt, Ont.
Shurly Dietrich Co., Ltd., Galt, Ont.
E. C. Atkins & Co., Hamilton, Ont.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.

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Chicago Machinery Exchange, 1219-1227 Washington Blvd., Chicago, Ill., U.S.A.
Plessisville Foundry, Plessisville, Que.
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Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Plessisville Foundry, Plessisville, Que.
Samuel J. Shimer & Sons, Milton, Pa.
Baxter D. Whitney & Son, Winchendon, Mass.
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Sheldons, Ltd., Galt, Ont.

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Canada Machinery Agency, Montreal.
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Hespeler Machinery Co., Ltd., Hespeler, Ont.
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Mussens, Ltd., Montreal.
Baxter D. Whitney & Son, Winchendon, Mass.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

SWING SAWS.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Plessisville Foundry, Plessisville, Que.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

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C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Baxter D. Whitney & Son, Winchedon, Mass.

TENONING MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
H. W. Petrie, Ltd., Toronto.

TOOLS (Hand).
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Mussens, Ltd., Montreal.
Samuel J. Shimer & Sons, Milton, Pa.

TRIMMERS.
Berlin Machine Works, Ltd., Hamilton.
Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.

TRUCKS.
Canada Machinery Corporation, Ltd., Galt, Ont.
Sheldons, Ltd., Galt, Ont.
Hespeler Machinery Co., Ltd., Hespeler, Ont.

TURNING MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
C. Mattison Machine Works, Beloit, Wis.
Canada Machinery Corporation, Ltd., Galt, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Plessisville Foundry, Plessisville, Que.
Baxter D. Whitney & Son, Winchendon, Mass.
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Canada Machinery Corporation, Ltd., Galt, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Falls Machine Co., Sheboygan Falls, Wis.

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J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.

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J. A. Fay & Egan Co., Cincinnati, O.
Elliot, Bathurst St., Toronto, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

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Hespeler Machinery Co., Ltd., Hespeler, Ont.
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Mussens, Ltd., Montreal.
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William R. Perrin & Company, Toronto, Can.

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Mussens, Ltd., Montreal.

VISES (Band Saws).
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Simonds Canada Saw Co., Montreal.
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J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
H. W. Petrie, Ltd., Toronto.

VISES (Pattern Makers').
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.

VISES (Circular Saws).
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Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
H. W. Petrie, Ltd., Toronto.

WAGON AND CARRIAGE MACHINERY.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Plessisville Foundry, Plessisville, Que.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Ober Mfg. Co., Chagrin Falls, O.
Baxter D. Whitney & Son, Winchendon, Mass.

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Smith & Phillips Mfg. Co.

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The "Morton" has a reputation for drying oak, maple, birch and beech quicker and better and with less steam than any other method—excepting none.

Write for our New Catalog "W"

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If you only knew, you would not **waste** money by throwing away your

## BROKEN CASTINGS

But would send them to me to be brazed and made as strong at break as other part.

I am now doing this class of work with unqualified success. Positively guaranteeing each joint. A trial will convince you.

Send me a sketch if break is in gear or circle casting and I will advise you.

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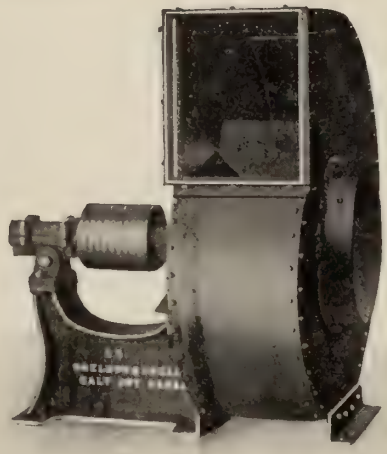
The New Slow Speed

## Sheldon Exhaust Fan



**The Fan that is revolutionizing the Shaving Exhaust Business**

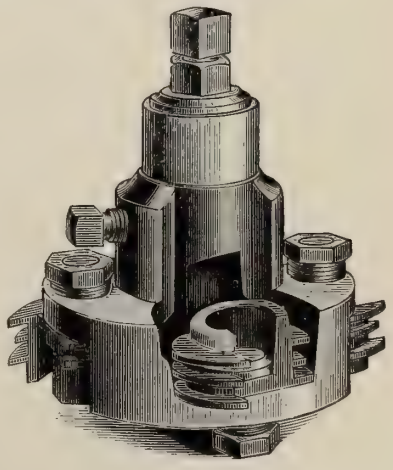
It will handle wet or dry, long or short shavings and sawdust, and will do this work with a guaranteed reluction in speed of from 25% to 40% less and with a power consumption of 20% to 35% less, than any other exhaust fan. The Casing is very similar to that formerly used, but the wheel is of an entirely different design.

Let us tell you more about it

**SHELDONS LIMITED - Galt, Can.**

# Double the Capacity of Your Matcher or Moulder

## By the use of Shimer Double Ceiling and Double Flooring Heads



100 per cent gain in output for an investment of only $40.94 and upwards.

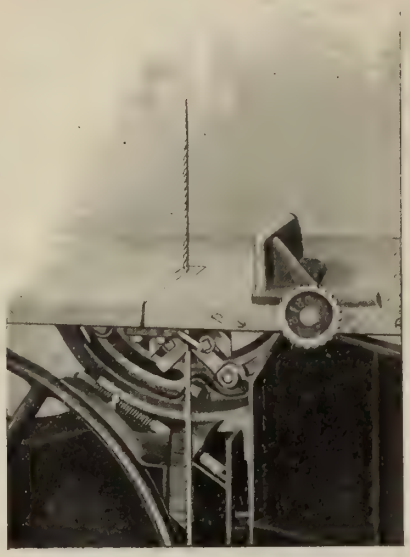
Instead of paying several hundred dollars for a new machine, run your stock with double tongue and groove and then re-saw.

The Bits on the Shimer Double Heads mark the saw cut line of division on the stock so that the sawyer can at once detect any variation of the saw and correct it as the board is passing through.

These Heads are no experiment. We have made them for years and they are in daily use in the best mills of this and other countries. You will find them very complete and practical tools, carrying the Shimer guarantee to do as represented or no sale.

We make a number of Heads for special purposes. For any design of material you get out in quantity let us give our estimate on the Head to do the work. Our prices are uniformly low—our goods the best quality.

MILTON, PA. **SAMUEL J. SHIMER & SONS** GALT, ONT. CAN.



View showing micrometer adjustment to the table with accurately graduated scale. Table tilts 45 degrees to the right and 5 degrees to the left.

The latest 36 inch BAND SAW—and not only the latest, but the BEST.

However, we will abide by your judgement after you have read our booklet on the subject.

A copy of it will be mailed you postpaid.

Fitted with direct connected motor, with rheostat mounted on the machine itself. This is the most efficient method of driving a **BAND SAW.** No belts, no lost motion, very little power required.

Showing ball-bearings and patent straining device for the upper wheel.

Here are some of the features of this machine :

Ball - bearings for both wheels; iron doors and iron guard. Fitted with our famous "Mohawk Dutchman" saw guide; patent weighing strain to upper wheel; solid lower wheel; and a table that tilts both ways and is self locking. All these features combined with the best materials and the most skillful workmanship unite to form the finest Band Resaw that has ever been built.

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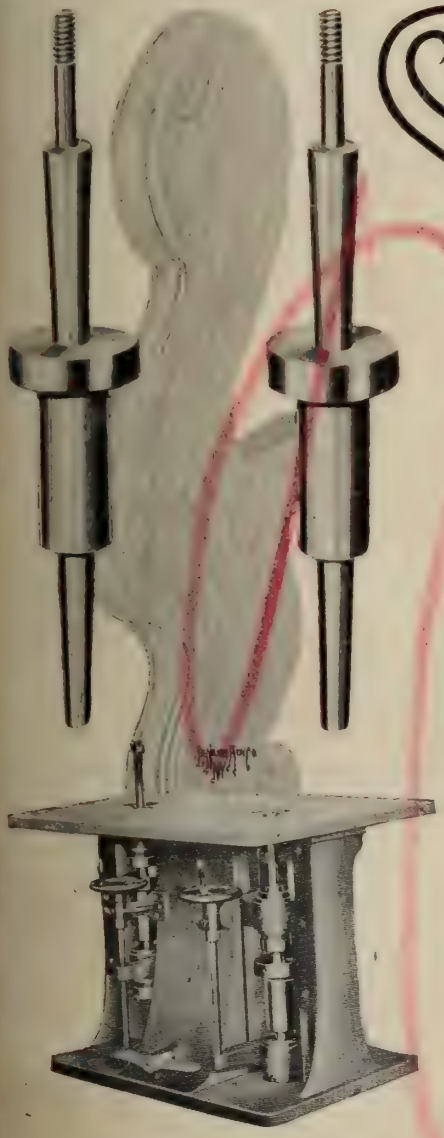
CANADIAN WOODWORKER

Toronto, June, 1912



# Whitney Shapers

Shaping the edge is work that demands precision and with precision there must be exactness according to pattern.

It would take a book of many pages to discuss the many operations that a Spindle Shaping Machine is capable of doing.

You know what you want to do as far as shaping operations are concerned, and you would like to have the best machine for the purpose.

Write to us—and we will do the best we can to tell you about what we think is best for you.

## Baxter D. Whitney & Son

**Winchendon, Mass.**

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This is a Cut of the

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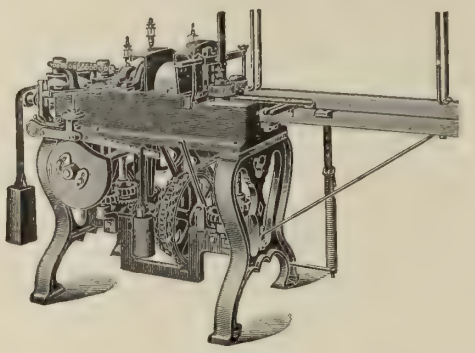

for turning Fork, Hoe, Rake, Mop, Broom and Ice Hook Handles, Pike Poles, Tent Poles Trolley Poles, Curtain Poles, Chair Bows, Dowels, Rods and similar work.

**Simple Strong Durable Economical**

We also manufacture other lathes for making Spokes, Handles and Variety Work, Sanders, Shapers, Boring and Chucking Machine, etc.

Complete Catalogue and Price List Free.

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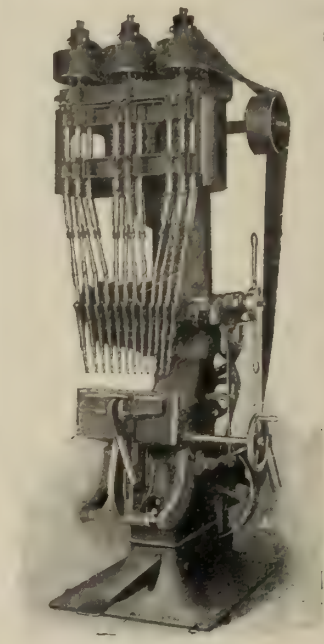

In the boring of your chair seats and backs by using the

## Nash Twelve Spindle Universal Boring Machine.

It will bore all spindle and post holes at one operation in 1,000 to 1,200 chair seats per hour.

It will also do a large variety of boring, using any number of bits from one to twelve.

Spindles adjustable to any angle up to 35 degrees, and from 1-inch center to center to 24 inches apart.

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**842-848 30th Street :: Milwaukee, Wis.**

## Guaranteed Not to Crack or Split

Our solid bored colonial columns, an illustration of which is shown here are manufactured by a special method which makes it possible for us to guarantee them not to crack or split.

The shaft and all the trimmings are each manufactured from a solid piece of timber and are fully up to measurements.

There are absolutely no joints to open up in either the shaft or the trimmings. The neck mould is turned solid on the columns.

The design of the shaft is such that there is no taper in the lower 30", thereby enabling you to furnish all special short lengths from stock of the standard eight foot **Solid Bored Colonial Columns**, by sawing off the lower end of shaft.

Do not wait until you need columns, but anticipate your wants in advance and order now.

We furnish Columns in any size or length; send architects plans and let us figure with you.

## The M. Brennen & Sons Mfg. Co.

**HAMILTON, ONT.** Limited

# THE WINDOW FRAME MAKER

***The Machine that Does the Work of Ten Men at ONE-TENTH THE COST***

IT brings a sure and steady profit to the mill man wherever there are houses to be built and windows to be put into them.

It turns competitors into customers by producing window stiles so much cheaper than the carpenters can make them by hand that they save money by buying the machined stiles from the mill and nailing them up.

Every planing mill man who ever sells a house bill, should investigate it most carefully, simply because it means money to him.

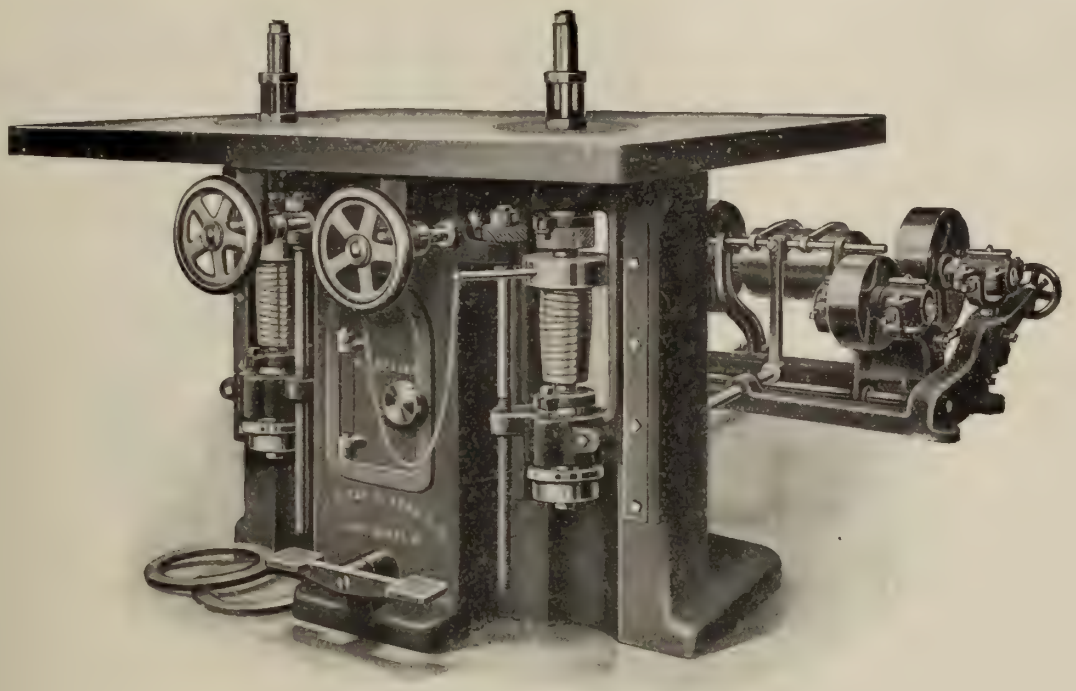
Machine does everything shown

**OUR PERFECT WINDOW FRAME MACHINE is running in hundreds of places all over the country. Let us tell you of one near you that you can examine.**

## Smith & Phillips Mfg. Co.

**412-422 N. Sangamon St., Chicago**

**Our Combination Stair Router, Edge Jointer, Sash Groover and Light Shaper is an interesting tool. Shall we tell you about it?**



Fay & Egan Co's. New No. 265 Double Spindle Shaper

# Fay-Egan "LIGHTNING" High-Speed Shapers

RESULTS show that the *Fay-Egan "Lightning" High-Speed Shapers* will stand up to high duty service twenty-four hours a day when necessary.

The tool steel taper spindles, running in phospor-bronze taper bearings with continous oil flow, can be operated at a speed limit only by the wearing qualities of your belts.

The increased quantity and smoother grade of work done on these high speed shapers make them a big paying investment.

The Automobile factories of Detroit use forty-nine *Fay-Egan "Lightning" No. 265 Double Spindle Shapers.* These factories wanted the best shapers they could buy—and they bought *Fay-Egan's. You* want the best for *your* money. Investigate carefully, and we know you'll buy *Fay-Egan's* too. Write for our shaper catalog.

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**World's Oldest and Largest Manufanturers of Woodworking Machinery**

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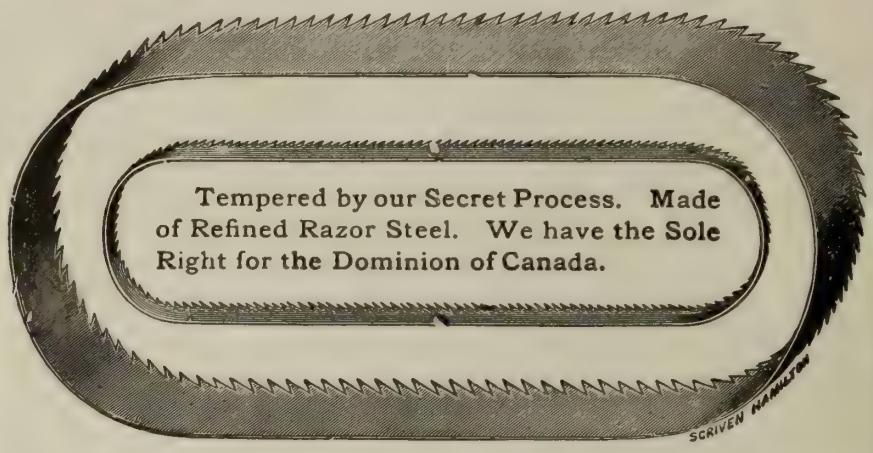
MADE BY

LARGEST SAW MANUFACTURERS UNDER THE BRITISH FLAG

We manufacture Circular Saws Gang Saws Mill Saws Band Saws Cross Cut Saws Buck Saws Saw Setts etc.

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**Canadian Woodworker**

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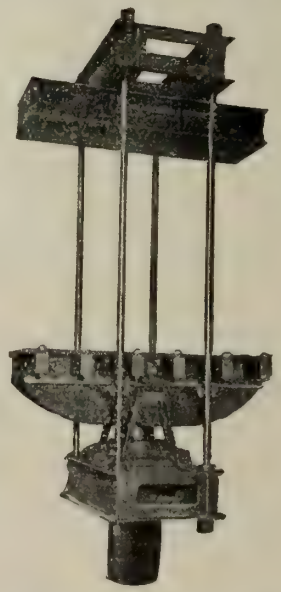

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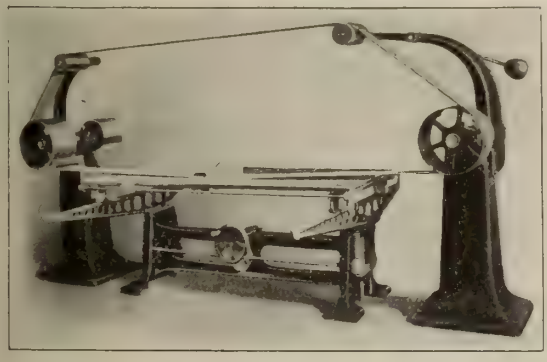

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**was the statement made on April 12th by the Superintendent of one of the largest Canadian furniture factories to his general manager.**

The advisability of ordering a second machine for one of their other factories was under discussion. He continued :"There is no question about it. You cannot obtain as near perfect results in any other way. Why look at those six foot maple tops. Those joints are a **marvel, almost beyond belief,** then think of the saving in the Finishing Department, no doctoring of joints."

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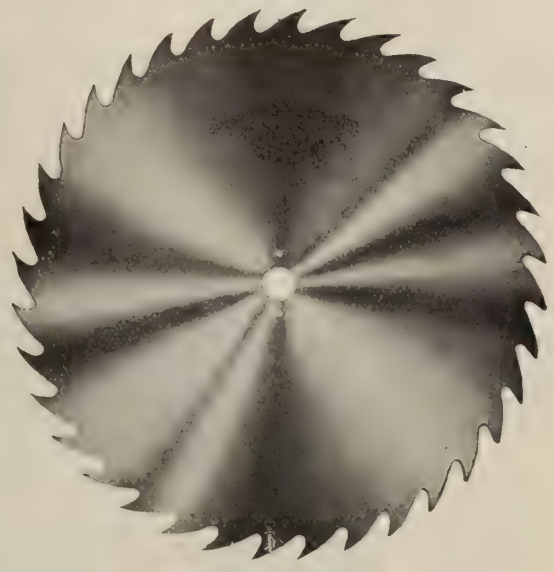

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**AND BEAR THIS TRADE MARK**

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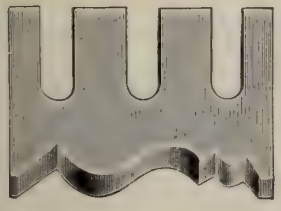

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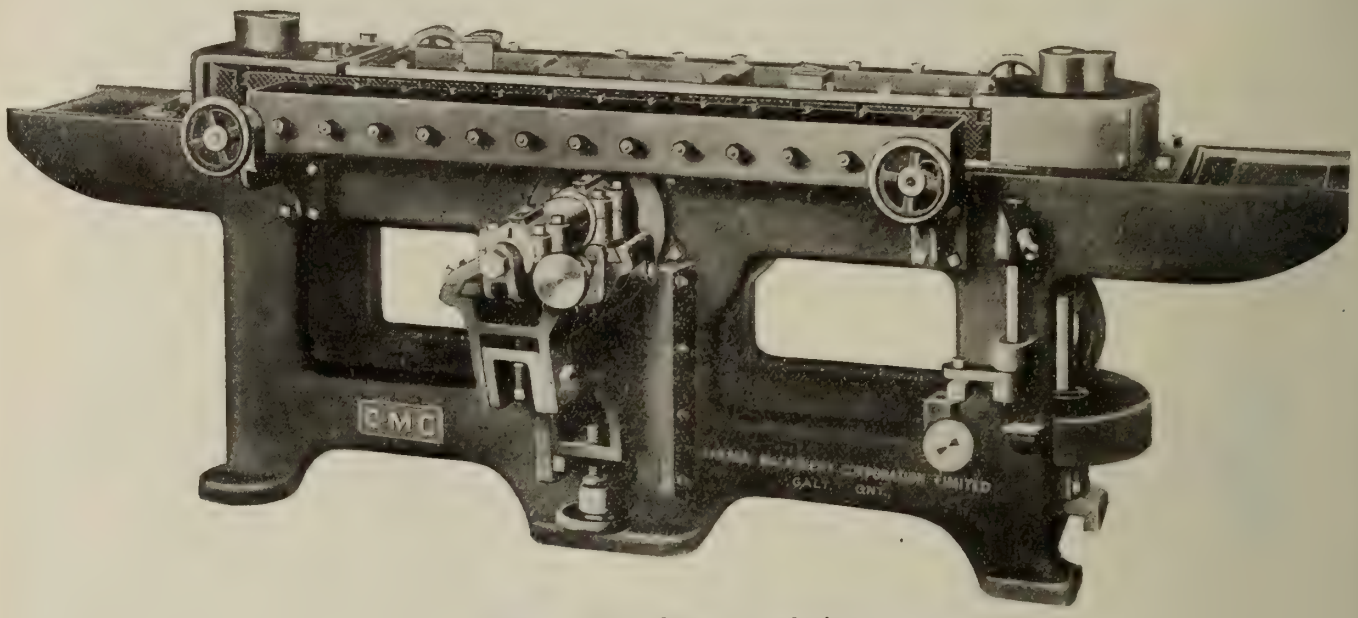


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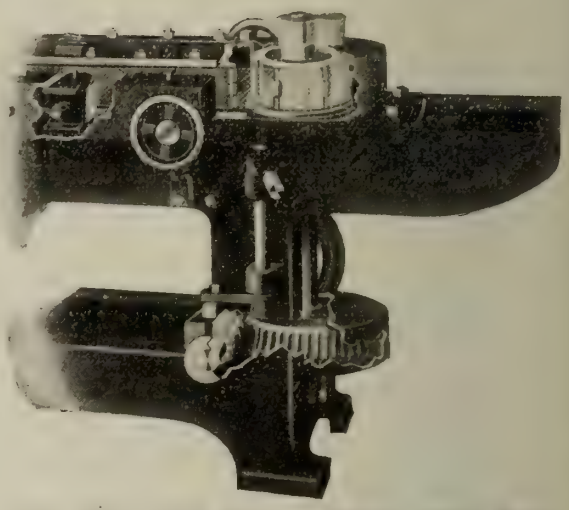

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United States: E. J. MACINTYRE, 4057 Perry St., Chicago.

SUBSCRIPTION RATE.

Canada, United States, $1.00; Great Britain, Australia 4s 6d.; other countries $1.50 per year. Advertising rates on request.

**Vol. 11** **June, 1912** **No. 6**


# The Trade and the Trade Paper

The finer departments of the woodworking trade have, of recent years, grown to such an extent that proprietors, superintendents, foremen, and general mill and shop hands all have to keep abreast of the times in order to turn out the high class of work demanded from the present day shop, and also to be able to handle that work in the most economical manner possible in order to meet competition and to keep the balance on the right side of the ledger.

This effort is largely responsible for the growth of the trade paper and for the high place which it now holds in the minds of those men who aim at being a little ahead of the average run. The endeavor of the Canadian Woodworker, at all times, is to be of practical use to the proprietor in keeping him in touch with the new machinery and appliances manufactured for the woodworker, to the foreman in pointing out the new methods of handling the work and the latest ideas which have been put into practice throughout the world, and to the general woodworker in showing him short cuts in his work and giving him hints covering all departments of the shop and the mill.

In such a trade journal as the Canadian Woodworker the advertising pages are frequently of as much interest to the reader as are the editorials. On these pages will be found announcements of new inventions in machinery, new processes for carrying out the work, and new markets from which to purchase the raw materials, tools, and finishers. The modern woodworker will find himself well repaid by reading editorials, special articles and advertising alike.

Advertisers are always glad to furnish full particulars and estimates of cost to any reader of the Canadian Woodworker and we ourselves are ready to hunt up any special information desired, relative to the trade, and to make any suggestions or give any hints which will be useful to our readers. Never hesitate to ask your trade paper publisher any question relative to your business. He is never too busy to try to give his reader the information required, and frequently has means of gathering data not open to the general public but of great value to the enquirer.

Although the woodworking trade of Canada has made such tremendous strides we foresee a much greater future and hope to do our share towards putting this industry in its proper place amongst the prominent industries of the country. It takes study and hard work in this line, as in all others, to get to the top but the old adage "There is always room at the top" is as true now as ever.

## Not Making Office Desks Fast Enough

Shortage everywhere due to inability of factories to keep up with Demand from New Business Firms Springing up Throughout Canada

There is an office desk famine in Canada—another interesting bit of evidence that the growth of the country is running away from those who are trying to serve it. Dealers in office fixtures all tell the same story. They are at their wits' end to know what to do with the hundreds of business people who are clamoring for desks. The shortage began nearly a year ago, but the dealers now are simply submerged with orders.

There are only half a dozen manufacturers of desks in Ontario. Their plants are in the west end of the Province. They are making more desks than ever, but their total product is now merely "a drop in the bucket." A representative of one large Toronto firm has just returned from a round of these factories, where he tried hard to secure at least fifty desks, but he could get only fourteen. This firm is now beginning to import desks from the United States, paying a thirty per cent duty on them. And this practice will become general if the Ontario manufacturers cannot speedily enlarge their plants.

Another Toronto firm dealing in office specialties say that they never have a desk in stock now. They are away behind in their orders, and desks never even touch the stock room, being hustled as fast as they can be secured, from the manufacturer to the consumer.

Still another manager said: "Just listen to this: In one type of desk we have eleven in stock and orders for 285; in another type, none in stock and 108 wanted; in another, 104 wanted and none in stock; in another, 87 wanted and none in stock. And so on."

The great shortage is in desks of average price—those retailing from twenty-five to fifty dollars each, and especially in typewriter desks, for which there is a very large demand. Dealers have to wait for three or four months to have orders filled for these desks of stock pattern, which, normally, the factories would have on hand in considerable quantities. High-priced desks, retailing at seventy-five dollars or so, can be secured in two weeks; and there is no great shortage of other articles of office furniture.

It has been suggested that furniture manufacturers have found that there is less profit in making desks than other office supplies, and that some of them are not attempting to meet the demand. It is true that numbers of furniture factories do not turn out desks—even those who make other office fittings. But the dealers are not inclined to blame the manufacturers for slighting desk production, except that they say the factories ought to be enlarged.

The manufacturers of Western Ontario say they are behind at least 5,000 desk orders, but they claim they cannot secure as many cabinet makers as they require. There are plenty of carpenters in the country, but few good cabinet makers. They say that as roll-top and "fussy" desks have gone out of use almost entirely, and as the demand is for plain stock patterns, they find manufacture as profitable as ever,

but they cannot get skilled workmen in sufficient numbers to warrant a large increase in their factory facilities.

The desk famine is general all over Canada, although Toronto seems to be hit hardest. Dealers say that the number of new office firms starting in business in Toronto, and requiring desks, is astonishing, not to speak of the expansion of established firms. The fitting up of offices in new skyscrapers has called for huge quantities of all kinds of furniture. In the West, too, in the past year or so, new offices, of real estate dealers and others, have sprung into existence in surprising numbers—all wantin- desks at from twenty-five to fifty dollars.

The real estate dealers, East and West, are said to have played a bigger part in precipitating a desk famine than an- other class of business men.

Canadian desks are in demand everywhere. One South American firm, in Buenos Ayres, sa- they can use 300 desks a month if the Canadians could supply them at a reasonable figure.

### Carpenters and Mill Men Want Better Protection For Their Work

There is nothing that will arouse the ire of the millman and carpenter so much as to see good work and material damaged through the negligence of those whose duty it is to see that the painting is done at the right time.

This is not the first time the Canadian Woodworker has had occasion to speak on the subject and just now we call attention to an instance where the millman and carpenter were most unfairly treated.

This spring two young men formed a partnership. Their first contract was the erection of a double verandah with balconies. Both are capable and ambitious young fellows and were anxious to create a favorable and lasting impression. The material was purchased from a millman noted for the quality of his work, and in this case he took extra care to see his new customers had the best the mill could supply. When the last nail had been driven and the left-over material removed, the completed job presented as fine a bit of workmanship as one could hope to find and these two young men were fully justified in a little personal pride. But unfortunately, four days elapsed before the painters reached the job and during the interval it rained more or less.

We dont know who was to blame because the painting was not gone on with in good time, but we do know that the millmen and carpenters have a right to demand that work and material receive better treatment than it was accorded in this instance.

Consider the influence this is likely to have on the workman when he sees machine work that left his hands in perfect condition damaged in the manner we have just stated. Consider also the carpenter and we think it will be admitted that each has just cause for complaint.

### Piling Lumber

The price of lumber has reached such a high figure that proper piling is essential in order to get full value for the price paid.

In the days of cheap lumber it did not matter so much if a few boards became warped and twisted during the drying process. It is different to-day, and now we find the careful yardman devoting attention to this important detail.

One of the most successful methods of piling lumber is to have a concrete foundation with the back lower than the front. For lumber 12 to 16 feet long four tiers are necessary and each strip should be placed directly ocer the one beneath it. This prevents sagging. The front strips should be placed flush with the end of the boards or even a little projection is better still, as the strip will prevent checking.

The old method of air drying lumber was to stand it on end so as to permit the moisture to escape. This method is seldom employed to-day—at least not in Canada—so the main object of slanting the pile is not, as many suppose, to keep the rain off, but is to facilitate the drying. Lumber piled on the pitch or slant is not likely to dry as quickly as when stacked on end, but the Canadians seem to prefer the lumber pile, claiming that when the foundations are right and each board put straight and properly stripped and a good slant given to the pile, as suggested, little loss will be sustained during the drying process.

As already intimated, much attention is paid to this important matter. Indeed, it is the practice of some men to have the piles examined from time to time and if any of the boards near the top show signs of warping they are turned over and weighted down.

### Workmen's Compensation for Injuries

The long delay in bringing in Ontario's laws regarding the compensation of workmen for injuries—or their relatives in the case of fatalities—arising out of their employment is beginning to cause keen resentment in labor circles. It was hoped that Sir William Meredith's inquiry would have been sufficiently far advanced to permit of the introduction of legislation at the last session of the Legislature.

The year's further delay that must now take place will mean that hundreds of maimed workmen and dozens of families of Ontario men killed as the result of industrial accidents must go through life without the aid that a just and progressive law would secure for them. The existing legislation is more fruitful of law suits than of money for the claimants.

Compensation for workmen is one of the largest questions that manufacturers and legislators have ever been called upon to consider. It is one that has occupied or is occupying a large share of attention in every civilized country. Compensation and prevention are kindred subjects, but in the discussions the latter is over-shadowed by the former, though of equal if not greater importance. The growth in numbers of violent deaths suggests that education or legislation is required for the conservation of human life. An equitable method of remunerating employees temporarily or permanently disabled is, however, now the issue in Canada. To the manufacturer labor shows an irritable reluctance to co-operate on this question, always evincing a suspicion of motives. One manufacturer, who can well be considered typical, emphasized the thought, time and money he had expended in equipping his plant with accident preventive devices, and yet these would be removed. He had seen men so careless in their conduct with machinery, that he remained in daily dread of accidents. In spite of this he expressed his willingness to contribute to a compensation fund, though he objected to being saddled with all the compensation costs as at present, or the alternative of paying for insurance or defending himself against lawsuits for damages, which usually result in a greater outlay than would cover the cost of the question at issue.

### First Aid to the Injured

It is becoming the custom in woodworking establishments to have one or more cabinets filled with the necessary articles to be used in giving first aid to the injured. The idea is an excellent one and affords a ready means of relieving pain in the case of serious accidents until the injured one can be attended to by a doctor. In the case of minor accidents, such as small cuts or smashed fingers, the contents of such a cabinet come in mighty handy. These cabinets should be kept in a good clean part of the shop. Any druggist will tell you what articles you should stock it with, but the following suggestions may help.

If a nail is lost by the fiiger being smashed the finger should be dipped in melted wax—not too hot, of course—keep dipping until it is well coated over. This will afford protection to the wound and encourage the growth of a new nail.

A solution of boracic acid or a bottle of peroxide is a good antiseptic to have at hand to be used in washing the wounds and will prevent blood poisoning. Clean towels and plenty of lint should also be provided. These things don't cost much and their presence may mean a lot.

---

### Ornamental Shingles A Band-Saw Job

Cut or ornamental shingles are in great demand nowadays and when well designed and still further brought out by the painters art add greatly to the appearance of small and medium-priced houses.

When it is decided to use cut shingles care should be taken to see that their use is not overdone as is sometimes the case. Care should also be taken to see that the design is appropriate to the general surroundings.

Cutting ornamental shingles is really a band-saw job and is not so costly as many would suppose. There are many methods employed to do this work. The most objectionable is the nailing of a bunch together. A quick way is to make a box-like arrangement to hold as many shingles as can be cut at one time.

This is one of the simplest and most satisfactory plans. Take a piece of pine the same width as the shingles but about eight inches shorter. Then nail a piece, say four inches wide, on each edge—in the centre of course—and long enough to reach half an inch above as many shingles as you intend to cut at a time. Nail across the top of these two side pieces a strip not more than three inches wide then insert a wedge in the opening between the top shingle and this strip which will hold the bunch in place while being cut.

If a large number of shingles are to be cut, have three or four boxes. A boy can fill and empty them. This will leave you free to keep right on sawing. It is surprising how many fancy shingles can be cut in a short time when this plan is followed out.

---

### Looking Out for the Boy

The industrial spirit of the German people seeks to prepare the growing generation for achievements as the work of to-day compares with that of the '80's. in production as imposing in contrast with the present

The son of a day laborer who, within the view of the national policy, should be more useful to himself and the commonwealth than his father, is the subject of careful expert observation. His teachers, the school physician and the parents endeavor to determine the handicraft to which the boy is adapted. The physician takes note of his body.

The strong boy of average build is classified as suited to become a brewer, a smith, a carpenter, a mason, or a worker in iron construction, or some other calling requiring at least average strength. The undersized or weaker boy is considered as being better adapted to become a tailor, a bookbinder, a basket maker, a wood carver, a locksmith, a jeweler, a glazier, a joiner, a cabinet maker, a potter, a brush maker or a confectioner.

#### Watch the Weak

The boy with weak lungs is excluded from trades where there is a good deal of dust, such as that of the wood-turner or the paper hanger. The boy with pulmonary weakness would also not be allowed to become a shoemaker or a tailor, because of the bent attitudes in which he would have to work.

Should the boy have a weak heart he would be classified as unfit for the heavy work of the smith, the butcher, the miller, or any of the building trades. The youth who has chronically perspiring hands is deemed incapacitated for gold work, clock making, book binding, or lithographing. The boy with inflamed eyelids is as fully excluded from work in colors as though he were color blind. Within the view of the school medical counsellor, the boy must be saved from entering upon a trade in which he will always be at a disadvantage physically, and his whole life be a strug◦le on unequal terms with those better qualified to deal with the peculiar conditions of that trade.

#### Toronto Technical Schools to be Wide Open

"The purpose of the Technical School is to provide our manufacturing industries with a supply of intelligent workers," said Principal McKay, when presenting the 1912-13 curriculum to the Advisory Industrial Committee.

"The more intelligent the workers are the better for themselves and the industries," Dr. McKay continued, "therefore I recommend that there be no fees for the full industrial course of four years. This will apply to girls as well as boys.

"By freeing the industrial course from fees, it will increase the possibility of parents keeping children at school throughout the four years, instead of giving them only the short course of two years.

#### Employers' Aid

"There is also the probability," said the doctor, "that many employers will arrange to give their young employees two or three hours off twice a week to attend the classes in the industrial course, and in that way complete the four-year course."

"The Canadian Manufacturers' Association has already decided upon that policy," R. D. Fairbairn announced, "and its members are only too anxious to help their your employees to complete the industrial course."

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### A Jobbing Carpenter's Scheme

A recently arrived old country jobbing carpenter has hit on a good scheme when re-shingling old houses. His plan is to spread carpet or old tent material over the lawn so that all the old shingles can be easily gathered up. This protection to the lawn and flower beds is much appreciated by householders, and is proving the means of bringing to this man all this and similar work he can handle.

This is not to be wondered at, for it is just such acts as this that help to build up trade.

# A Freak House

Economy in space and cost, together with convenient equipment and perfect arrangement, are without question the considerations of greatest importance to the architect of the apartment and small city dwelling designed for a small lot. The latest example of the extremes to which architects and builders in their endeavors to produce cheap dwellings that possess all the conveniences and comfort afforded by a more expensive type of structure, was recently illustrated in "Country Life in America." The "freak" house, as it is termed, has been erected at Evanston, a suburb of Chicago. It is built of stucco and costs about $1,500. It measures 25 ft. by 26 ft. in plan, and contains, by an ingenious arrangement, five rooms and a bath. The ground floor has a living room 19½ ft. by 12 ft.; bedroom, 13 ft. by 10½ ft.; bathroom, 8½ ft. by 5½ ft.; kitchen, 3 ft. by 9 ft.; closet, just outside the bathroom, 5 ft. by 3 ft.; and guest room, 7½ ft. x 5½ ft. Even the most careful figuring will not succeed in compressing all those measurements within the space of 25 ft. by 26 ft. That is because of certain arrangements which led it to be called "The House of Vanishing Rooms."

Exactly in the middle of the ground floor is a base-burner stove, which, upon a supply of four tons of coal, warms the entire house all winter. Over the main floor is a large attic, now used for storage; but two rooms can be finished off there if the downstairs supply proves inadequate. There is a curious closet between the bathroom and the sitting-room. One-half is a clothes closet, the other a stairway leading to the attic. When shut up these stairs are a tier of boxes serving as clothes hamper ,hat boxes, and so on. Pull the lower ones forward and they form a first-rate flight of steps. Under this closet a door leads to a fair-sized compartment built below the floor—there is no cellar—and giving additional storage room. The roomy bookcase, if approached from the rear—that is, via the clothes closet—is a linen chest. There is an automatic gas heater and bathroom.

The visitor staying to dinner wonder where the dining-room is, and whether he is expected to eat in the kitchen. His youthful hostess has disappeared some time since, and he hears sounds in the kitchen that tell him that a meal is in process of preparation. The kitchen is attractive enough for anyone to mistake is for a dining-room, but when the critical moment arrives the host presses a button in the hospitable mantel piece of the living room, the burlapped wall beneath the mantel slowly rises and disappears, and the dining table, in all its splendor of china and glass and snowy napery, appears through the opening, and when well on the living-room side the partition silently resumes its wonted place again; then chairs are drawn up, and you sit down to enjoy the repast. At the end of the meal the table is gently pushed back into the other room, the way it came, awaiting the pleasure and leisure of the mistress of the house to clear up.

Perhaps the greatest marvel is when the guest room appears out of an empty wall. A large, roomy couch is rolled over to the windows, and the panel behind it adjoining the bookcase, by the touch of a button, again swings out into the room. It may be swung out at right angles to make a larger room, but is usually left at a three-quarter angle, turning in slightly, and there you behold the guest chamber. It is a pretty room, with its fresh muslin curtains at the window, snowy counterpane on the bed, low, comfortable chair, and high, built-in dresser, which is in weathered oak to match the rest of the furnishings. When this panel is closed, the space is only large enough to hold the bed, chair, and dresser (which is built into the panel), but when opened out it gives a guest room of very fair dimensions, and a screen placed across the 3-ft. opening made by the folding out of the wall allows plenty of privacy. In the morning the wall is pushed back into place and the living-room resumes its normal size again.

## Building News

That the general trade and business policy of Canada is in the right direction is manifested from the great activity in building construction throughout the Dominion during the past year. The following figures show the expenditures in a few cities on new buildings:

| | | |
|---|---|---|
| Brandon, Man. | $ 982,385 | $ 1,245,290 |
| Calgary, Alta. | 5,589,594 | 12,907,638 |
| Edmonton, Alta. | 2,031,619 | 3,672,260 |
| Ft. William, Ont. | 2,381,125 | 3,077,860 |
| Hamilton, Ont. | 2,546,280 | 4,255,730 |
| Kingston, Ont. | 220,092 | 314,562 |
| London, Ont. | 805,074 | 1,036,880 |
| Moose Jaw, Sask. | 1,071,090 | 2,425,730 |
| Ottawa, Ont. | 3,022,650 | 3,425,775 |
| Regina, Sask. | 2,351,238 | 5,099,340 |
| Sydney, N.S. | 347,554 | 495,642 |
| Toronto, Ont. | 21,127,783 | 24,374,539 |
| Vancouver, B.C. | 13,150,365 | 17,652,640 |
| Victoria, B. C. | 2,373,045 | 4,126,315 |
| Windsor, Ont. | 392,040 | 739,515 |
| Winnipeg, Man. | 15,116,450 | 17,550,000 |

## May Permits Show Three-Quarter Million Increase in Toronto

| | | |
|---|---|---|
| Approximate value of buildings Jan. 1 to May 31 | $9,555,513 | $9,902,505 |
| Approximate value of buildings for the month of May | 2,643,755 | 3,393,680 |
| Number of building permits issued Jan. 1 to May 31 | 2,691 | 2,183 |
| Number of buildings for which permits were issued for the month of May | 1,258 | 1,143 |
| Number of new buildings erected Jan. 1 to May 31 | 3,764 | 3,383 |

## Building Figures to Reach Big Total in Regina

Building figures for the present year will in all probability exceed $7,000,000, according to Building Inspector Falls. Although the building permits to date have not been very favorable, there is a considerable number of large buildings for which permits will have to be taken out soon if the work is to be proceeded with this year. The building inspector is at a loss to account for the manner in which building operations seem to be holding back, when there is such a tremendous amount of work in prospect. "There never was such a large amount of work in

prospect, but there are few permits for large buildings to date. I could name dozens of large buildings which it is proposed to erect in Regina, but no steps have been taken toward the commencement of their erection. I have but little doubt the building figures for the present year will exceed $700,000, even though the figures to date won't warrant it."

### How They Build in Japan

The Japanese houses are in a large majority built of the cheapest materials that are obtainable. It is a fact that this custom has developed an axiom among the people to the effect that rather than use expensive material they would build twice. So flimsy is the construction in erection or destruction that a large part of a town may be suddenly burned out and be rebuilt within but a very few days.

The present method is merely a mode of bamboo-clay or plaster construction, the exceptions being the modern buildings for governmental purposes, bank structures, and other office erections of stone blocks, or stone and brick.

In the general mode of construction of a Japanese house the sills and heavy timbers are connected with a network of split bamboos, which is filled in with a cheap muddy cement. When dry, the outside walls are covered with clapboards, the inside walls being either smoothly plastered or finished with a well-grained wood. Another method is to board up the sides of the building, tack fireproof flat tiles about eight inches square upon this and cover the whole with a good grade of cement or plaster. The roofs in cities are, with few exceptions, of fireproof tiles laid in cement, over light shingles that have previously been covered with a cheap claylike cement, repairs being necessary after one or two years. Country houses are, as a rule, thatched, and with the "shoji," or paper-covered sliding doors, the cost is very little for material and construction.

Wages of skilled workmen are generally estimated as about one-third of those paid in this country. The cost of coolie or unskilled labor is dependent upon the locality and occupation but is but a meagre remuneration at best. Children are employed at from nine to twenty sen per day, the rate for adults beink 15 to 60 sen for a day's labor. Now if we reckon a sen as half a cent it will be seen that the amount paid is not large. The rate of exchange is 100 sen=1 yen=49.8 cents.

### Small Houses Will Cost More This Year

Small houses are to cost more in Toronto this year than they have done in the past. According to rumor, a six-room house will be sold for about $3,000. Five hundred dollars of this will have to be paid down at the time of purchase, and the balance will be spread over a period of about fourteen years. Fewer people will be able to start buying their homes. Already there is a marked shortage of houses for rent, and we must expect to absorb many immigrants this year. This must result in more serious overcrowding, which in turn, will lead to the enlargement of the slum areas.

Although a committee is starting a housing scheme on the co-partnership principle, which will relieve the situation to some extent, nothing is being done to provide healthful accommodation for families which cannot afford to make substantial cash payments. Private enterprise evidently is not prepared to solve the problem. Therefore, Council will have to act. We have no right to herd respectable workingmen and their families into slums. Besides, such a practice is dangerous to the city, and can lead only to the infliction of a heavy burden on the citizens. The workers must be properly housed. This is a primary obligation on the community, and Council is elected to discharge such obligations.

### A Lot of Flooring to be Laid

An American carpenter, referring to an article which appeared in the Building Age recently, says:— It is rather amusing to read the article which appeared on page 650 of the December issue of the Building Age and bearing the above title. It certainly shows that the person who wrote it does not fully appreciate under what conditions the carpenter has to work now-a-days; at least in the big cities. Among a hundred carpenters there are certainly more than eighty skilled workmen who know how to make a good job and like to do it, too, but are prevented from so doing. All that is required of them is to bring a lot of good work into sight. The carpenters in the big cities working on apartment buildings and flats are virtually driven like slaves; no time is allowed in which to make a fancy job—not even a good job, no matter what the work may be.

I had some experience of this nature that reminded me of the article in the Building Age. I started to lay a floor in a twenty-flat building when the foreman told me that a lot of floor was to be laid, and said: "Don't nail every strip—just lay a lot of floor; that is all we care for." Then they place a carpenter in the other room and you have to try to beat the other fellow or out you go. There is no question as to going on your knees and driving the nails home with your nail set.

Then, again, from the contractor's point of view he has to take the job at a low figure, otherwise he doesn't get it; so that he is actually obliged to drive his men and skimp the work wherever possible in order to come out ahead and be able to buy an automobile.

### HANGING HAND SAWS

Hand saws are usually hung up by the handle, involving a very awkward operation every time they are taken for use or replaced on the pin. It usually requires both hands to go through this performance, so common to every woodworker that its awkwardness is not appreciated, and will not be until he has his saws intelligently hung up by the point, with the handle within reach. Then he will wonder why he didn't have that hole drilled in the point long ago, By the way, drilling that hole is the only difficulty in the matter, but any machinist knows how to drill a saw of ordinary temper. Don't be contented with a small hole, but make it five-eights of an inch or three-quarters of an inch, although the machinist will doubtless drill a small hole first.

When you have your saws thus properly suspended, you will hang them up a dozen times a day where you now lay them down for a few minutes until you want them again. Besides, this method has decided advantages to the saw itself. Its handle is not scratched and marred by being constantly placed and replaced on a rough nail or screw, and its blade is not corroded by the sweaty hands of the workman, as is necessarily the case in the old way. It would be a decided boon to wood workmen if sawmakers could be induced to put this hole in the saws when they are made.

# Graining in Imitation of Mahogany

### Treatment of a Door

The following descriptive method of graining a door in imitation of mahogany represents English practice and is taken from a late issue of one of our London contemporaries.

In the first place the ground color can be prepared by mixing equal parts of yellow ochre and orange chrome yellow, and adding one-fourth part of bright venetian red. To get the brighter color the yellow ochre may be omitted and half the quantity of white base substituted. The color should be thinned with one part raw linseed oil to three parts of turpentine and sufficient liquid driers to dry the color in from 12 to 15 hours. When the door has been thoroughly sandpapered and dusted the first coat of color is applied. After an interval of at least three or four days the second coat is applied, and when thoroughly dry the graining is done. This portion of the work may be done wholly in water color, or by being done partially in water color, and it may be finished in oil color.

The graining colors are burnt sienna, vandyke brown and rose lake or rose pink. For a very bright shade crimson lake may be used in the overgraining color.

Vandyke brown alone ground in water is used for the water color stippling, when the work is to be finished in oil color. The vehicle for applying the color is one part stale beer or vinegar to two parts clean water. The color is applied in a thin wash and while wet is stippled or flogged with the long bristle made for that purpose. The object desired is to endeavor to produce the effect of the dark pores of the wood.

When dry the oil color is applied over the stippling. The color is made by mixing equal parts of burnt sienna, vandyke brown and rose pink. Thin this color with a mixture composed of one part raw linseed oil to two parts turpentine, adding a sufficient quantity of driers. Make the color thin and apply with a soft brush evenly over the stippled work. When slightly set take some of the graining color and thicken it with some of the rose pink and vandyke brown, and with a small fitch tool make the dark veins in the wood. Draw the dry rubbing-in brush first lengthwise with the grains and when the color is leveled or smoothed blend lightly crosswise, but always in one direction. This will produce an effect similar to that seen in the natural wood. A badger blender may be used instead of the rubbing-in brush. One edge of the darker veins is invariably darker than the other and seems to recede into the wood.

Study the grains of the wood and notice all the lights and shades and endeavor to reproduce their counterparts in the work. When dry the oil color may be overgrained in oil, using a thin wash of the graining color. Or the crimson lake may be used alone, reduced to a very thin wash with the thinners previously mentioned, or with a mixture of liquid drier one part to two parts turpentine. When thoroughly dry this may be varnished.

Where the work is done wholly in water colors the graining color is composed of the same proportions of pigments, and they may be mixed together or used separately and a dip of each applied and blended on the work. The latter method is most frequently pursued by trade grainers if the work is not of very large size.

The work is first damped over with a sponge wrung out of some stale beer or vinegar. The color is then applied sparingly and worked up with the mottler, sponge and blender to produce the effect of light and shade in the wood. This process cannot be described with accuracy. Nothing but a study of the real wood and a careful attempt to reproduce similar effects can afford an idea of how it is done. The darker, finer grains (which usually run in the general direction of the heart grains of the wood) are represented by using a thin overgrainer charged with dark color and applied over the dry water color, and blended at once to produce a sharp, clean edge on one side of the work. When this is dry it may again be overgrained, using thinner color, and when all is dry the hand can be passed lightly over the color to remove any surplus dry color and the final overgraining may be done in oil color as previously described. A very thin wash is all that is necessary for this overgraining, as the thicker color obscures the sharpness of the work done in water color.

When dry the work can be varnished or it may be finished in oil, using two parts raw linseed oil to one part turpentine, adding sufficient liquid drier.

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### Timber and its Decorative Possibilities

One of the most striking features in the remarkably successful building exhibition recently held in London was the prominent display of timber in the shape of interior fittings for mansions, etc., and we feel sure that the many beautiful exhibits brought together by enterprising firms of what can be done in this direction will certainly prove a stimulus to the employment of wood to beautify, ornament, and render comfortable the interiors both of domestic and public buildings.

It is, of course, quite true that, under the rules of so-called fireproof construction, timber is excluded as much as possible from the carcass of a building—occasionally, indeed, to the development of faults in another direction—but even in such buildings there exists plenty of opportunities whereby wood, either in some of its most beautiful varieties or of more usual kinds worked to tasteful designs, can be employed with every regard to public safety.

For interior domestic fittings and finish it cannot well be disputed that timber possesses claims of preeminent quality. Nor are signs wanting to show that public taste is rapidly veering toward a larger utilization of wood for the decoration and improvement of the home.

The many excellent methods of paneling shown at the exhibition to which we have referred must have brought home to the visitor what a cozy, comfortable, and tasteful room such a method of covering the walls produces; while, thanks to improvements in machinery, the cost of paneled fitments cannot be regarded as excessive when due allowance is made for their permanence.

Mantlepieces in oak, mahogany and other hardwoods, or in pine or American whitewood afford scope for the expression of more artistic designs than is possible in such unyielding materials as marble or slate, and, from a timber trade point of view, it is pleasing to find that in most of the modern residential properties, wooden mantlepieces are being installed. In even

small property, picture, chair, and dado rails now find a place, with results advantageous alike to the importer of molding strips and to the manufacturer of moldings.

Much, of course, of the present-day demand for wood fittings and finish is due to a change in public taste, which has called for a revival of Elizabethan and Georgian designs.

Period furnishing, properly carried out, demands appropriate interior fittings, and the extensive employment of woodwork in the styles of those days is as promising in a trade sense as it is gratifying in an artistic one.

The popularity of the Georgian style of furnishing with its strong leaning toward the employment of mahogany can be gathered from a passing glance at the large furniture emporiums. It is satisfactory to find public taste so ready to appreciate the beauties of a wood which served to stimulate to the highest pitch the genius of a Chippendale and a Sheraton; and which, moreover, from its mellow, kindly, and durable properties, is so well fitted to afford expression to the best efforts of craftsmanship.

The demand for coherency of design and idea has revived the wooden bedstead, for which mahogany and oak seem the most favored materials. As a material for interior fittings it is, indeed, no exaggeration to say that wood is undergoing a virtual renaissance.

By carefully studying the requirements of manufacturers, so that in specification and quality the raw materials can be supplied in the most usable and economical form, the timber trade at home and abroad can do much to foster a movement from which, in turn, it stands to reap considerable advantages.

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## Paint for Shingles

**By A. Ashmun Kelly**

Paint is sometimes required for shingle coating, but if I had to decide the matter it would be in the words of Punch: Don't! Paint is probably the worst coating one could apply to shingles. It is all right so far as the exposed parts are concerned; it is in the cracks between that the trouble comes, for there the paint will form little dams and hold water, which in time will rot the wood. Still, as stated, paint will be used, and hence a word as to its character and application. Let it be of a good mineral pigment, mixed with pure raw linseed oil only, with a little japan driers. Mix it quite thin—a mere primary coat—and the damming of the cracks will be greatly lessened, if not entirely avoided. It is best to use pigments that are ground in oil, for the dry pigment is too coarse for this purpose. Nor should a ready mixed paint be used, for it will likely be unfitted for this particular purpose. After mixing the paint, strain it through a fine wire sieve, which will remove any foreign particles and make the mass more perfectly incorporated. To mix it, add a little oil to the pigment at first, and work it into a smooth paste, gradually adding more oil until the mass is quite soft, and then is may be further thinned for application. The use of driers should be carefully done, as excess of this liquid will tend to injure the paint, so that it will not wear as well. Paint on shingles is in a position to suffer a great deal more from the weather and sun than where used on the sides of houses. Therefore, see that it is of the best quality and carefully mixed. Many times it will not require any driers, as in summer, in dry weather.

Shingles may be dipped in paint, just as with shingle stain, by making the paint very thin, and adding some benzine to the mixture, which will thin out the paint and make it more penetrative, while not affecting the paint, as it evaporates and leaves the oil as it was. Place the thin paint in a tub or half-barrel and tack a strip across, and as you dip the shingle draw it against the strip, which will remove excess of paint. The advantage of dipping is in the fact that all parts of the shingle are protected, and when the shingles warp apart, under the influence of the sun and wind, there will be no raw places to show through, and which unpainted parts detract very much from the appearance of a job of this kind. After the shingles have been dipped and laid they will be greatly benefited and enhanced in beauty by the application of a brush coat of the same paint-stain.

When dipping shingles throw them loosely in a pile, to dry out. It is not necessary to dip more than two-thirds the length of the shingle, or far enough to cover what is likely to show. Some remove the excess paint with a bristle paint brush.

The pigments used for shingle painting should be not only very finely ground, but transparent also. Such colors as raw and burnt sienna, raw and burnt umber, chrome green, chrome yellow, Prussian blue and drop black are useful pigments. These colors may be used alone, or in compounds, according to the color you wish. Thus umber makes a walnut shade, as does also Vandyke brown, only darker; raw sienna makes an oak color, burnt sienna makes a cherry color; a light pigment may be toned down with black or umber or Vandyke brown; Vandyke brown may be imitated by mixing together burnt umber and black. Raw sienna and a little burnt umber will give a dark oak color. Chrome yellow will lighten up chrome green, and black will tone it down. Zinc white should be used when a white is desired, because it is non-poisonous, a matter to be considered when the water is to be used for culinary purposes; sometimes the water from the roof is caught in a cistern and used. In such a case do not use any of the lead colors, such as chrome yellow, chrome green, or white lead. The earth colors, sienna, umber, Vandyke brown, and also drop, ivory and lampblack, are perfectly safe colors to use.

Colors may be blended on the roof after painting by applying two or more colors in bands like, and softly blending them with the brush. This makes some very pretty color effects, and takes very little more time. For this purpose use the paint slightly thicker.

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Don't stick around your own shop all the time; it will make you narrow in your views of things; it will keep you in a rut. Get out once in a while and see how the other fellow is doing things; he may be wiser than you think.

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To make the marks on a steel square more distinct, take thick white lead and work japan dryer into it till it is of the consistency of thick cream. Coat the square with this and wipe off with a thick rag stretched tightly over a flat wooden block, which will take all the lead off the surface and leave the depression full. In twenty-four hours the square will be ready for use, and there will be no difficulty about seeing the marks.

### History of Quarter-Sawed Oak

It is probable that the present generation of hardwood lumber men, and even exclusive oak producers, scarcely realize that the quarter-sawing of oak, to form a specific lumber product, is of comparatively recent origin. For some years it has been a disputed question who was the pioneer in quarter-sawed oak manufacture. Hardwood Record has taken considerable pains to gain definite information on this subject, and it is only recently that it has secured evidence that practically constitutes proof of the origin of quarter-sawed oak manufacture, which for some years has constituted such an important element in oak production.

In 1871 there resided in the city of Boston a Mr. Thayer, an Englishman, who was one of the best and most brilliant architects of his time. About this time he drew the plans and made the specifications for the building of the city hall of Providence, R. I., which still stands as a monument to his talents as a designer of public buildings. The question of the proper finish for this building coming up, Mr. Thayer suggested that recently in England some oak logs, both of domestic and Austrian growth, had been sawed into lumber on the quarter, and that the result was very pleasing, and he believed that American oak would lend itself to sawing in this fashion, with good results. Specimens of the English product were obtained, and it was decided to have oak lumber manufactured in this way, with which to finish the building. The firm of Morgan & Chesley, of Providence, now out of existence, received the contract to supply the interior finish, and they transferred their order to J. L. Slocum & Son, wholesale lumber merchants, of Providence, who were to secure for them oak lumber sawed in this fashion.

E. E. Slocum, of J. L. Slocum & Son, interested Jacob L. Rumbarger in producing this lumber for him. At this time Mr. Rumbarger operated a small circular sawmill on Beanblossom Creek, near Gosport, in Monroe county, Indiana.

Lawson Hancock, of Gosport, Ind., who is still living, and who in those days was a cattle driver in the winter time, assisted in bringing the oak logs down Beanblossom Creek, and in the summer worked in the Rumbarger mill, trucking out lumber and sorting it. He recalls very distinctly the date of the first production of oak lumber by quarter-sawing.

James M. Jones was the head sawyer in the mill. John Davis, who still lives near Gosport, Ind., remembers one particularly large oak tree that he sold Jacob L. Rumbarger, which formed part of the timber that was sawed for the original Providence quarter-sawed shipment. One plank from this particular tree was exhibited at the Centennial Exposition in Philadelphia in 1876.

B. F. Davis, who is also still living, remembers the initial sawing of quarter-sawed oak in this section of Indiana, and says that he was the inspector at the Rumbarger mill at that time, and tallied every board of the shipment.

The original deal made by Jacob Rumbarger for the quarter-sawed oak was on the methods prevailing at this day, i.e., he sold J. L. Slocum & Son one carload of the lumber as a sample, subject to an order for what they required. After the initial car arrived, he sold them a large quantity of this stock, and shipped it to them during the year 1873 running along into 1874. Great care was taken to secure the best white oak trees among the magnificent growth of that region, and great pains were exercised in sawing the lumber accurately. E. E. Slocum, the buyer of the stock, was an authority on finishing woods at that time, and during his business career in Providence often pointed out the finish in the city hall as the first quarter-sawed oak finish ever employed in any building in the United States. It was years afterwards that quarter-sawed oak was used in furniture manufacture.

Undeniably Jacob L. Rumbarger was the pioneer producer of quarter-sawed oak in the United States, and sawing it at his little Beanblossom plant in Monroe county has since 1872 grown to constitute an important element in oak production, and for this method of oak sawing is obtained the highest price ever secured for oak lumber.

Incidentally, a few years ago the writer of this article discussed the history of the early manufacture of quarter-sawed oak with the late Henry Maley, of Edinburg, Ind., who later made many millions of feet of it. Mr. Maley was not at all certain as to the history of the inception of its manufacture, but stated that he commenced manufacturing quarter-sawed oak in 1880.

Incidentally, Jacob L. Rumbarger, the veteran Indiana oak manufacturer, who retired from business some years ago, is now a resident of Philadelphia, and on January 18 next will celebrate his seventy-sixth birthday. He is still hale and hearty, and loves to recount his reminiscences of early days of logging and lumbering in Indiana.

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### Broom Handles from Other Woods than Maple

Years ago, when broom corn was cheap and the principal aim of the broom manufacturer was to turn out an article of the highest quality of manufacture, he preferred to use basswood exclusively for handles, because of its white color, its light weight and the ease with which it worked on the old-style foot-power machinery then in use. However, with the increased price of broom corn and the growing practice of quoting on brooms by weight, the broom manufacturers soon began to see the advisability of cutting down somewhat in the weight of broom corn and making up the weight by using a heavier handle. As a consequence, they gradually changed to handles made of hard maple. At first they endeavored to put green stock into their goods, with the idea of making them weigh that much heavier, but, as this was soon found to be impracticable, they finally used dry hard maple entirely. These handles have gradually been increasing in price and decreasing in size. Where they were originally one and one-eighth inches in diameter, the common handle now is only one inch. While the limit in price for hard maple handles has probably not yet arrived, it soon will. With advancing price in this line it will not be long before some substitute will be found. Various kinds of woods have already been tried out, but none of them seem to answer the purpose, and there is no reason to suppose that there will be any substitution until prices make the use of hard maple absolutely prohibitive. In the opinion of the writer, the first wood which will be used to substitute in this line of manufacture will be red gum. If properly taken care of, this wood has excellent qualities; it will turn on the lathes finely, will take a smooth finish, and can be waxed or enameled as easily as the maple. While basswood could be used, its price is prohibitive, even if the broom men would buy basswood handles, which they will not, except for

special purposes. Probably the solution of the question lies with the sawmill man. There is undoubtedly a great deal of waste in slabs and edgings, and in the woods after the tree has been cut, that could be easily worked up on bolting saws into handle blanks. These can be sold to reliable factories as fast as they are manufactured. While the handle manufacturer prefers buying such stock dry. ready to work, he, as a rule, would not object to buying them green when he could get them.

### The Finish of Handles

The trend of custom at present seems to be toward the highly finished enameled handles. This may in part be due to the fact that painters are taking greater pains with that line of work. This type of handle at first was simply given a coat of paint, a few stripes, and a coat or two of varnish. Then the stripes went out of style and the handle was finished in one solid color. But the painters began to use a cheap grade of material in this style of finish, in order to cheapen the product, and did material injury to the trade, as they put out a handle that would lose its color when damp. It has taken several years of careful effort by some of the best firms doing this class of work to live down the reputation thus gained. But it is felt that the enameled handle as turned out to-day by these firms will stand every test, and the housewife need have no fear of staining her hands with a broom with an enameled handle.

It is necessary, however, to have, as a basis for enameling, a smooth, well-turned and thoroughly dried handle. While that quality of stock can be turned out by most of the handle plants, it is a fact that the bulk of handles put on the market is not smooth enough for enameling without resanding. While some of the handles appear smooth, they have a gloss finish, and the enamel will not take properly on them without resanding. The process of enameling is very simple in itself, and requires only a lathe for turning the handles at high speed, the most important feature of the process being the paint or enamel itself. The formula is always a secret one held by the persons doing the work. There are a number of preparations on the market for doing this work, but the best types of finish are put out by men who have been experimenting for years and have worked out their own formulas. This enamel is rather expensive, and while one handle is not very large, a thousand of them will take quite a little material and labor for finishing. The average cost of doing this work is about ten dollars a thousand handles, and up, according to the grade of the finish. The enameled handle is coming more into favor each year, and it is only a question of time until all high-grade broom handles will have to be enameled in order to be reliable.—H. B. A., in Hardwood Record.

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Small teeth and lots of them help to do smooth work just the same on the band-saw and the circular as they do on the hand-saw of the carpenter. So says a mechanic who does not lose sight of the business qualities of large teeth though he did not at the time emphasize these advantages. Uniform size and sharpeners are the main factors.

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Have you observed how frequently the call for foremen includes among the desired qualifications "an ability to handle men?" If you want to be a real good foreman, study mankind as well as machines and methods.

### Opportunities for Foreign Trade

The following enquiries have been received from England and other countries relating to Canadian trade. The names of the firms and their addresses can be secured by interested parties by writing to the Enquiries Department, Canadian Woodworker.

Any of our readers who are answering the enquiries should not fail to forward references—particulaly if bankers references.

124. **Lumber.**—An agent at Havre is anxious to secure the representation of a good Canadian firm wishing to export lumber to France.

125. **Canned goods.**—An agent at Havre would be glad to accept the agency of Canadian canners of fish, fruit, meat and vegetables.

126. **Timber.**—A French commission agent would be glad to receive quotations from Canadian exporters of rough lumber (logs) in such varieties as elm, ash and walnut.

127. **Agent.**—A Yorkshire firm of varnish, paint and color manufacturers, oil boilers and tar and resin distillers, are prepared to consider the appointment of Canadian agents.

128. **Paints and enamels.**—A Scottish manufacturing firm producing all classes of paints and enamels, and specializing in export trade, are prepared to undertake Canadian business.

129. **Turned goods.**—A London firm manufacturing chairs and tables makes inquiry for the names of Canadian manufacturers of turned goods, suitable for common wood chairs, such as turned spindles, stretchers, chair seats, &c.; the firm are also in the market for supplies of Canadian beech.

130. **Building materials.**—A Danish correspondent asks to be placed in touch with Canadian manufacturers of building materials open to do business with Denmark.

131. **Timber.**—A Nottingham firm would like quotations on rock elm, birch and hickory, also pitch pine and Oregon pine.

132. **Lumber.**—A Boston firm would like quotations on Canadian lumber, delivered Hull or Liverpool.

133. **Quebec pine deals.**—A Nottingham firm is open to receive quotations on Quebec pine deals.

134. **Furniture.**—A South African firm of commission agents and general dealers is open to represent Canadian manufacturers and exporters of office and general furniture.

135. **Carts and carriages.**—A firm of commission agents and general dealers in South Africa is open to represent Canadian manufacturers and exporters of carts and carriages and parts thereof.

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### Industries in the West

Eastern Canada is stronger industrially than the West, but the West is taking on importance in an industrial way and will not any longer be content to hide its industrial light under a bushel. Out of the wonderful growth and prosperity of the West there has sprung a great home market for the factory products of the country to which are added millions of dollars worth of imported goods each year. Fostered by this market and its growth from year to year, the industrial development of Canada has been almost as remarkable as the building up of the West.

# Pattern Making Woods

In response to repeated inquiries of a number of concerns, Hardwood Record has dug up some rather interesting data concerning the relative merits of the different woods employed for pattern making purposes. Investigation, conducted at several large pattern shops in Chicago, shows chiefly the utilization of three kinds of wood, i.e., white pine, cherry and mahogany. White pine has always been used primarily in the manufacture of patterns, and still furnishes the principal supply of material for this purpose. Owing to the high price of No. 1 shop and better white pine, which are the grades employed for pattern making, California sugar pine is substituted to a considerable extent in many pattern shops where large castings are made. Sugar pine is regarded as the best substitute there is for white pine, but it is not as satisfactory for the reason that the tiny "sugar streaks" in this wood are prone to ooze resin even through the varnish finish, which often results in a rough casting. However, by the employment of a heavy coat of varnish, this deficiency of the wood is not difficult to eliminate. While both white pine and sugar pine are inferior to cherry and mahogany, their lower price makes them more generally employed for pattern making purposes. It has been estimated that patterns made in cherry and mahogany can be used several thousand times, whereas a softwood pattern would endure only about one-quarter as long a period. Constant use will gradually wear off the sharp edges that are all-important in the forming of an accurate mold. When this occurs the usual remedy is to champfer down the blunted corners and set in duplicates of cherry or mahogany. In core boxes, it is a common practice to glue a hardwood veneer over the pine. Only small or delicate patterns that are liable to be subjected to unusual wear are always made of hardwoods. The larger patterns, such as gear wheels, have their teeth made of hardwood, and the framework of pine.

Generally speaking, any wood that tends to either shrink or swell is poor material for pattern making. Experience has shown that pine will shrink considerably in width, and will also expand materially when placed in contact with the moist core-sand. This latter objection, however, has largely been overcome by varnishing.

Considerable quantities of the three above named woods are utilized each year by the big pattern concerns of the country. As a single instance of the extent of consumption, the Chicago branch, alone, of the Allis-Chalmers Company of Milwaukee, consumes each year 175,000 feet of pine and 1,500 feet respectively of mahogany and cherry.

The process by which castings are made is an interesting one to watch, but difficult to explain. Blueprints are first made of the special casting desired, and from these the wooden patterns are made. In order to get the impression of both sides of a pattern in the sand from which the castings are made, it is necessary to make the pattern in two halves, fitted closely together by means of wooden pegs. The upper or peg part of the pattern is known as the "cote," and the lower part is the "drag." Inasmuch as the pattern represents space merely, it would be impossible to make a casting from it alone. Hence core boxes are used in connection with those patterns in which any recesses or projections occur and make it impossible to draw the pattern from the moist sand without disturbing the impression made in it. Core boxes, like patterns, are always made in two sections.

A core is made of a mixture of sand, flour and resin, which when baked becomes about as hard as wood. In the case of very large cores, a quantity of sawdust is also added to the mixture. When in the oven this sawdust burns out, leaving tiny holes through which the gas, generated by the metal shaping around the core, can escape without doing any damage.

The pattern is first put into a "flask," i.e., a hollow box of two or three inch stock, filled with damp sand mixed as above stated. The sand is then packed in around the pattern tightly, up to a level with the top of the "flask," when it is swept off and leveled with a straight-edge. A wire is now used to make air holes through the hard-packed sand and the pattern is removed, leaving a perfect impression. This same process is gone through with both halves of the pattern. The cores are made with the core boxes in a precisely similar manner. The sand impressions thus made are then shoved into an oven on steel plates, where they harden, and after cooling and glueing or wiring the halves together, the mold is complete.

Casting consists of pouring moulten metal down through a hole in the sand left for that purpose. The metal thus fills the opening left by the pattern, and shapes a metal figure exactly like the original woodon one. The man pouring in the metal can gauge the precise amount desired by watching it rise through another hole made in the sand before baking.

As the moulten metal is poured into the molds, a kind of vapor can be seen arising from all the small holes punched through the sand. This is the gas generated by the hot metal, and were it not thus provided with some escape, it would form a pocket and prevent the metal from completely filling the hole. Castings take several hours to cool, after which the sand can be readily crumpled away.

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### The Most Expensive Wood in the World

Cabole (Anisophyllea cabole Henriq.) is the name of a beautiful tree belonging to the mangrove family of plants, Rhizophoracew. It is a native of the west coast of Africa, and is very common on the Island of St. Thomas, where it is found generally in low or medium elevated portions. In the southern part of the island the tree grows so near the shore that its roots occasionally strike salt water. A more ideal situation is on the southern slopes of the mountains, where in its mature state it forms a very large tree. Individual speciments may be seen here and there which are from 120 to 140 feet high and from 4 to 7 feet in diameter 4 feet above the ground. Most of the trees are very much smaller, for the reason that practically all the mature trees have been cut down to make room for the cultivation of sugar cane. The large trees which are now to be found on these islands have been spared for the purpose of shade or wind break.

The wood, which is very highly esteemed, has a yellowish or light chestnut-brown color with darker colored streaks. It is very firm and durable, and when sawn into boards has the appearance of teak wood (Tectona grandis L.). It is easily worked and is sus-

ceptible to very high polish. When carefully filled and varnished it takes on a most beautiful appearance. The specific gravity of this wood is about 0.780 or 48.5 pounds per cubic foot. It is the most costly wood in the world, and is used at present only for making high-grade furniture and objects of luxury. 8his wood also serves as material for making fancy doors, parquetry, and interior finish of very fine residences.

Cabole was first sold in the city of St. Thomas in 1885, and immediately became very popular for all sorts of fancy work. The first boards which were brought in the market were not sawn, but split with wedges. Several of the merchants of St. Thomas at once attempted to introduce this beautiful wood into the English and German markets, but the cost of preparing the logs for shipment was so great that the project failed. The wood retained its popularity in St. Thomas, and the price soon went up to about $3,-500 per cubic meter. Cabole may, therefore be considered the most expensive wood in the world.

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### Finishing Oak Flooring

The finishing of oak flooring is a feature which, while most important, is one on which authorities differ; but the question simply resolves itself into a matter of taste as to the tone, color and brilliancy of finish desired. Primarily, the floor should be treated with a paste or liquid filler. A paste filler is recommended by a good many authorities inasmuch as it can be worked into the wood more thoroughly, closing the pores and crevices and producing a dense body for the final finish. A variety of tones quite as attractive as the natural wood can be obtained by incorporating coloring matter with the paste filler before it is used, or by the employment of prepared colored fillers.

The final finish consists of a coat of fine oil varnish. This should be allowed forty-eight hours or more to set, and then be rubbed down with rotten stone and oil, or with very fine sandpaper. A second coat is then applied which is also given forty-eight hours or more to set. After the second coat, if a glossy or shiny surface is not wanted, this can be again rubbed to a dull finish. This finish, if done with high-grade materials, is lasting and durable and does not show scratches readily.

Another authority suggests that, after the wood is filled, a coat of pure white shellac be employed. After allowing twelve hours to set, a second coat is employed, and when dry the surface is gone over with No. 0 sandpaper. After this is done, a heavy coat of good floor wax is applied, spread evenly, and rubbed well into all parts of the floor. The wax should be permitted to set for twenty to thirty minutes, and then with a weighted brush the floor is rubbed both across and with the grain of the wood until a good polish is effected. To further increase the lustre, a piece of Brussels carpet placed under the weighted brush when rubbing the floor is very attractive.

Another good method of finishing a floor after the use of the paste filler is to apply a heavy coat of good floor wax, and then with the aid of a weighted brush the surface may be rubbed to a velvety gloss. This is a popular and economical finish.

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The forests of the Philippines, according to official figures, contain 200,000,000 board feet of lumber, half as much as in the forest reserves of the United States, but one-eighth the area.

### History of Shingle Making in the United States

The number of shingles made from white pine in the United States has been enormous, the three states, Michigan, Wisconsin and Minnesota alone having produced 85 billion in 24 years. Shingles have been made of this wood since the earliest settlements of New England. For two centuries they were made by the slow process of hand work. The logs were cut into bolts by hand, rived with a frow, and the shingles were shaved with a drawing knife, the only other machine being a "shaving horse," a contrivance for holding the shingle while the manufacturer went on. It was a slow process, and the man who could rive and shave 500 shingles in a day was fully up to the average of his craft. That many shingles sold for a dollar or two, depending upon time and place. The rustic shingle maker was an expert in his line, and was supposed to be able to tell from a pine tree's general appearance whether it would "rive." He was at liberty, however, to test any trees he pleased by "blocking" them—cutting a large block out of the side of a standing tree to sample its splitting properties. If it did not suit he passed on, leaving the blocked tree a prey to the next forest fire that would ignite the resin which accumulated in and about the wound.

The pioneer custom in Kentucky of killing buffaloes for their tongues was little more wasteful than the primitive white pine shingle maker's procedure, He used only a small portion of the choicest knots, much of the heart and practically the whole trunk above the first 20 feet were left in the woods to rot. It was not unusual to sacrifice a 3,000-ft. tree to get 1,000 shingles—throwing away fourteen-fifteenths and using one-fifteenth. The introduction of shingle-making machinery put a stop to that enormous waste, for the saws could make shingles of knots, slabs, tops, cross grains and all else, from stump to crown. The old-style method of shingle making died hard, for the shavers opposed the introduction of machines, and declared the ruination of the country would follow so radical a revolution in a widespread industry.

It was sometimes found necessary to regulate by law the making of shingles by the old process. Thus, in 1873, an act passed by the Massachusetts legislature provided that if a bunch of shingles fell two per cent. short of the regulation length the shingles should be seized and sold for the benefit of the poor. Under the old method every individual piece was counted as a shingle, and it must be approximately of the right length and width; when sawed shingles came in they might be any width, but every four inches made a shingle, and a piece a foot wide counted three shingles. They were packed in bunches, usually containing 250 shingles. When made by hand two kinds were produced, known as "joint" and "lap." The latter were longer, with one edge thick, the other thin, and when nailed on the roof edge of one lapped over the edge of another, like weather-boarding. The joint shingles were short, and were nailed edge to edge, like sawed shingles.

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If the proprietors of factories would make the training of the young men in their employ a factor, instead of a mere incident, it would not only pay directly in the end by rapidly increasing their earning power, but would also go far toward eliminating that feeling of bitter strife that too often arises between employer and employee.

# The Horizontal Resaw

It is perhaps impossible to say just what motive or what mixture of motives is responsible for the introduction of the horizontal resaw into this country. Since its introduction, however, it has been adapted to lines of work that perhaps were not thought of at all in the original conception.

Primarily, the horizontal resaw seems to have been designed here to resaw short lengths that it is impossible to handle on the regulation band resaw. It carried with it a hopper feed, and the first one the writer remembers to have met with was designed specifically to resaw box factory stock—short lengths of stock after they had been cut.

In refining low-grade and cull lumber to get box stock it is often best to get rid of the cull part and waste before resawing, otherwise there is a lot of material to handle and resaw that does not produce anything. To refine it means to reduce it to short lengths, and hence the horizontal resaw.

Pretty soon the horizontal resaw idea began to attach itself to other things, among them its use for cutting up slabs and cull stock at the sawmill into shooks and boards. And a still later adaption is the attaching of a horizontal resaw to the back of a double-surfacing planer, so that lumber is surfaced and resawed all at one handling and it becomes practically all one operation.

This is perhaps one of the latest adaptions of the horizontal resaw idea, and its original purpose seems to have been that of resawing beveled siding as it comes through the surfacer without having to handle it again.

Of course, with a surfacer and this horizontal resaw mounted on the back end, one cannot only resaw beveled siding, but some of the mills follow out the idea of resawing flooring and ceiling. That is, of matching it in double thickness, surfacing both sides and resawing, to get twice the amount of work through.

It is questionable just how successfully this plan may be carried out. It is difficult to resaw with such perfection as to give the exactness in thickness essential to good work in the making of flooring and ceiling. The fact remains, however, that some mills are doing this right along.

The best opening, apparently, for this adaption of the resaw, this putting of the horizontal resaw on the back end of a surfacing planer, is in the resawing of box lumber and other stock of that kind. Box lumber is often surfaced on both sides and then run through a resaw, and if this is the plan being followed by the box factory it should simplify operations to have a horizontal resaw made on it as part of the surfacer, so that one time handling will do both jobs. It will naturally require a little closer attention and more skill and manipulation, but where there is enough work to justify, it is perhaps a money-saving proposition.

Anyway, this making of the horizontal resaw as a part of the surfacing planer is one of the new adaptions that is receiving quite a lot of attention now, and we will probably hear and see more of it in the near future. What other heretofore unthought-of lines it may branch out into remains to be seen. It has gone further already than was conceived in the original purpose of the resaw in this country, and apparently we are only beginning its development.

### Here's the Answer to the "How Many Knives Question"

The Question is—Will a Planer-head with Four Knives all Cutting Equally require less Power with a Given Feed than Two Knives?

Readers of past issues of "Berlin Quality" will no doubt remember the many answers from practical millmen as to whether four knives, all cutting equally, require less power at a given feed than two knives, and these answers showed good hard thinking too. Those of you who took part in this discussion can now judge how near correct your answers were.

We have just completed a scientific test here in our factory, and the results given below will prove beyond doubt where the lines can be drawn. Let us now see whether it is a question of knives or rates of feed that actually affects conditions.

In making this test a late feed type of Berlin Matcher was run at various rates of feed, and the top head was run only dressing the stock on one side. In each test made, a ¼-in. cut was taken from a 6-in. board. The r.p.m. of the cylinder is 3,200. The ammeter was connected to the power plant and registered the horse-power required to make the cut under the various conditions.

First test: A square cylinder was fitted with four knives and the lumber was fed through at 100 ft. a minute. Then the feed was run up to 250 ft. a minute and the ammeter showed that it required 2.3 more h.p. on the latter run.

Second test: Two of the knives were removed and the feed run at 100 ft. a minute. The instrument did not waver but showed that it required practically the same power as four knives at the same rate of feed. But when the feed was raised to 250 ft. it took 1.6 as much power than the four knives did at the same rate of feed.

Third test: In this test, round cylinders with six thin knives required 1.7 times the power of four on the square head with the feed running at 250 ft. a minute. And with the feed dropped to 100 ft., it required 1.9 more power.

Fourth test: Three of the six knives were then removed and it required .09 more power to make the cut at 250 ft. Then running at 100 ft. a minute, it required 3 h.p. less than with the six knives.

Fifth test: In this test, the r.p.m. of the cylinder was increased to 3,500 and other conditions remained the same. The ammeter registered the same h.p. in every case. If there was any difference at all it was so slight that the instrument did not waver enough for the naked eye to detect it. But as the ammeter is very sensitive it is safe to conclude that this change did not alter the h.p. enough to make it worthy of mention.—Berlin Quality.

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### Maxims of a Machine Woodworker

Don't say "that's good enough."
Don't use a screwdriver for a cold chisel.
Don't be too important to do insignificant jobs.
Just remember that the boss has some rights, too.
Don't make a practice of being late to your work.
Don't take off your overalls before quitting time.
Don't try to cover up your mistakes.
Don't wear jewelry on your hands; it's dangerous.

Don't wait until Monday morning to fill your oil can.

Don't deny spoiling a piece of work if you have done it.

Don't be too eager to make an impression on the foreman.

Don't think yourself above asking questions for information.

### The Merits of Self-hardening Steel Knives

One would think that by this time users of woodworking machinery would be convinced of the merits of self-hardening or high-speed steel, yet I meet almost daily people that have practically spent their lives in the lumbering plant, who either know nothing of or are prejudiced against this steel, without giving it a trial. Occasionally I meet some one who has tried it—in a way—and claims it is a fraud. Such conditions of mind exist without valid excuse.

One of the first objections offered by those who have never given it a trial is the high price, and from $1 to $2 per pound does sound quite strong as compared with 10c. to 20c., but as a matter of fact, if the proper kind is procured, and then properly used, it costs less in dollars and cents than the ordinary steel, to say nothing of the improved quality of work and time saved in changing and grinding knives.

By way of illustration, I have run one set of knives on four-side work eighty hours, with seven ordinary whettings with an oil slip, the knives having a heavy back bevel to prevent torn grain. The stock run was Douglas fir, and the quality of work A1. I suggest that those who have not used it should get a small trial order and give it a thorough test.

The kind of work to be done should determine the kind of steel. For surfacing and light cuts in moldings, beading, etc., 3/16-in. thick and only wide enough to reach from the slot in the cylinder to L-in. projection, is all that is necessary. It can be put on with the same cap ordinarily used for putting on the soft steel, unless knives 10-in. or over in length are wanted, when special caps should be procured from some manufacturer making them for this purpose.

And remember, there is steel and steel in this "high-speed" family, just the same as in the other class of steel. The price ranges from about 60c to $2.50 per pound. The self-hardening cannot be changed. Heating it and cooling in the atmosphere does not change it. Other grades require tempering—some with oil or water, and others need only to be heated to a medium-red and placed on any cold bar steel, or the anvil, until cool. And, like all other articles of commerce, some of it is bad, which probably accounts for some of the failures in its use. Some of these failures, however, are due solely to the user.

Don't think for a minute that because you have been successful with the soft steel and planing mill work in general, you are going to do the same thing with this steel from the beginning, for the chances are you will have to learn over again. It will not take long, however, and is well worth the time. Unless there are special reasons against it, only the real self-hardening steel should be used. It may cost more, but we are sure of always having a permanent temper, not to be affected by fire or friction. When this kind is used, never put it in water while hot. If you do, ruin is the result, as it will "flaw" badly.

If it is desired to use slotted knives without caps, then get the annealed grade, and temper the cutting edge only after the blanks are made. If long knives of this kind are necessary, they can be had of regular knife manufacturers, with the iron or soft-steel back and the hard-steel cutting face. In this case the hard steel is brazed into a seat that has been milled out in the back, as the two will not fuse in the ordinary way.

In taking into account the difference in cost by way of comparison, remember that the lasting quality is about three to one in favor of the hard steel. A number of houses handle this steel only in standard machine knife lengths, put up in bundles, and it is quite convenient for the customer, but costs more. In any case, the planing mill or molding mill, or both, should have a few bars of required sizes from which to cut any desired length as wanted.

Though "high-speed steel" and "back bevel" are terms usually used together, it is well to bear in mind that back bevelling it not necessary, and that as a straight-faced knife they carry an edge proportionately longer, thus carrying an increased value without considering the advantages of doing away with torn grain.

It may be that those who have not kept up with the history of its use remember what was said at the beginning of it, concerning the speed of the machine. The speed of machines was increased to as high as 5,000 r.p.m. This idea may deter some from beginning its use, but such practice has long been abandoned, and from 3,500 to 3,750 r.p.m. has proven to be the speed giving best results.

And, regretfully, I say that I have met a very few who "don't know anything about it, and don't want to know!" They remind me of the Arab who ties his elephant's tail to a wooden plow and tills the soil because his ancestors did so 4,000 years ago. But the time is fast drawing near when such men will have to go "way back and sit down," for modern machines and methods are rapidly replacing the old.—M. C. Cantrell.

### Building Progress in Australia

The following excerpt from a report by Consul-General John P. Bray, Sydney, New South Wales, serves to emphasize the growing value of that section of the world:

"Sydney has again established a record in building operations. Great as was the expansion during 1910, when 5,470 buildings were completed, last year eclipsed the previous year's record, 6,503 buildings, being completed up to December 15. The cost of the 6,503 buildings completed was approximately $17,795,000. There are about 425 houses and buildings of various descriptions in course of erection, at an estimated cost of $1,460,000. A rough estimate of expenditures in additions to existing buildings is $2,430,000. The total building expenditures for the year exceed $25,000,000. This does not take into account such items as wharfage, water and sewerage, tramway extensions, and railway works, but if those amounts were added the total expenditure for the year in construction work within the metropolitan area would probably reach $34,000,000, or $9,720,000 increase over 1910.

"This is a remarkable record of progress. The increase of buildings for 1911, as compared with that of the previous year, reaches a total of 1,033. Taking the figures from an official source, 22,214 buildings have been erected during the past four years."

# Working up the Left-Overs

There is, in addition to the scrapheap of trimmings and other accumulations of odds and ends of that class around many a mill, another scrap or junkpile that is really unnecessary. It is made a sort of junkheap through lack of proper attention and reasonable effort at disposing of it. In nearly every mill there is at some time or other left-overs in one form or another. Sometimes they are left from an order and are as good as the material sold, but are piled back in a dark corner, to become covered with dust and cobwebs and make a part of what eventually becomes a troublesome scrap-heap. Sometimes they are merely left-over stock in the form of moldings or some other work of special pattern, which cannot go back into regular stock—maybe a door, a door frame, a grill, or one of the numerous pieces of work which enter into the orders gotten out—and while they may come every day, and may not, they will in the course of time amount to quite a lot, and if not properly realized on, curtail the profit account considerably.

There is probably more than one way to avoid this, but what suggests itself as possibly the best way to handle these odds and ends is to give them special attention instead of piling them away in a corner to be forgotten. It doesn't matter what it is—door, grill or column—if it is worth while, the thing to do is to set it out in some conspicuous place where it will be before your eyes nearly all the time, and be seen when your customers come to the mill. Quite frequently it may be found that articles thus displayed will be just what some customer is looking for; and, anyway, the chance for a sale will be about nine to one against the chance when stock is stored away in a sort of scrapheap.

Left-overs which are not complete orders—say special patterns in molding, or parts of certain articles —while they cannot be cared for in exactly the same way, can by proper attention be made available for any special work which comes along requiring the same kind of material, and can be placed so conveniently at hand as to immediately suggest themselves. If they are piled up in a heap they are soon forgotten, and if a new lot of work comes along in favor of the stock-sawyer going out in the yard and getting fresh stock, instead of turning to the left-overs.

It didn't matter so much in the old days, when lumber was cheap, but now good lumber is too valuable to let go to waste in any such manner, and scrappiles of this kind should be abolished. It may take a little extra work and more or less trouble to get into the habit, but the habit, once cultivated, will pay good returns and keep the factory in better shape by virtue of being free from unsightly accumulations of left-overs, that not only take up good room, but are a menace in that they become firetraps.

### Men of Nerve

It is a curious fact that most of the structural steel workers engaged on various huge structures in Canadian cities are of Irish blood. In fact, the Irish and Swedes, or "square heads," as they are called, have almost a monopoly of this dangerous trade. The Irish will take more chances than the men of any other nationality, but the Swedes are not far behind, and how they divide the honors was illustrated recently. Two steel columns for the top storeys of a skyscraper had just been set in place at the corners, and stood starkly up fifty feet above the nearest cross girder. Each column was about eight inches square. When the news spread that a photographer was about to take a picture of them, two workmen "shinned" up the columns and stood on the top. The man at one corner was an Irishman, the other was a Swede. Sometimes these structural ironworkers lose their nerve. Why it happens, or how, they do not know; but sometimes a sudden panic will overwhelm a man. Then, if he knows his business, he will shout for help, for he cannot help himself. Now and then a man gets a mad desire to hurl himself from the roof, and if he is not restrained he will go as surely as though a great magnet were drawing him down to the earth. Oddly enough, one terrible fright rarely causes a man to give up the business. He gets back his nerve in a few days and becomes as daring as ever. It is said that an ironworker who goes to a new job when a building is already high in the air has not the nerve of a man who has been on the building from the ground up. Accidents are more likely to occur, while the first few storeys are under construction than later on, for the men take more chances, forgetting that a 40-foot fall is about as deadly as one twice as long.

### Good Tools Bring Good Workmen

A manufacturer of machinery, who has converted an old-time machine shop into one of the highest efficiency in methods and equipment, asserts that good machine tools bring good workmen. In his experience, which includes that of the evolution from old-fashioned to the modern, he has found it very much easier to hire high-class workmen when they know they are to operate high-class machines. Probably one reason for this is that desirable men take pride in their work and want the best equipment with which to do it. A glance in the tool chest of a good machinist proves this statement, for he usually has an elaborate well-cared-for kit, of small tools and instruments. The man who is particular about his own tools must be attracted by modern machinery. Oftentimes he rates his chance of advancement by the amount of work he can produce, and the better the machine the greater the volume and the more satisfactory the product. Improved manufacturing facilities thus constitute an element which should not be disregarded in the general aim to secure efficiency.

### Bad Luck and Hurry

Bad luck is the kick which hits a man when he gets behind time. When one is dashing frantically around so far behind that he can merely snatch at the tails of his job, something is pretty sure to happen, and, when he comes to, his first exclamation usually is: "Bad luck!" Being late makes hurry, and hurry almost invariably causes one to overlook some detail that will lose him time in the future. In the rush the bars are left down, the books unbalanced, the letter unread, the contract unexamined, and it is these unswept corners of a man's affairs in which the germs of bad luck breed. If a man finds himself habitually or even frequently behind with his work, one of two things is the matter: either he does not know how to work or he has too much work to do; and whichever it is, he will save time, nerve force, and money by adjusting himself to his work or his work to him-

self. Most frequently hurry is the result of misapplied energy rather than too much work. We rush frantically around from one task to another, doing a little here and a little there, tangling up the skeins of our duties and mislaying our tools until we are hopelessly behind and nervously wrecked. It is keeping the edges up, seeing that the belts are on and the machinery oiled, that one thing is finished before being laid aside, and that in our rush we do not put one thing where something else ought to be, merely to get it out of the way, which saves time and nerve force and avoids bad luck. The elements of swiftness do not include hurry. The greatest accomplishments are wrought by deliberate precision, and by the careful and apparently easy doing of each thing as it comes along.

### Facts About Belt Driving

Belts should not run faster than 30 ft. per second. Belts should not be run from very large to very small pulleys; up to 3 to 1 is good practice Belts running at high speeds over small pulleys should be thin and as wide as possible. Link chain belting made to suit the curve of the pulley will drive better and with less slip than flat belting, and wide belts will drive better than narrow ones. Loss of power is largely increased through belts curling up at the edges or stretching unevenly. New belts do not bed themselves so well on the pulleys, and will slip more than when they are older. Belts will slip less when running at fast speeds than slow. A fruitful cause of belts stretching unevenly and running from the pulley is from the driving and driven pulleys not being exactly parallel with each other and square in each direction; consequently the belt seeks the highest point and runs off.

### How Should Knives in Round Cylinders be Ground?

There are, of course, at least two answers to that question. Some remove the knives every time grinding is necessary, while the majority of us prefer to grind right in the head. The latter way is unquestionably the better for more reasons than one.

In the first place, a great deal of time is lost in removing the knives every time you want to sharpen them. And although you may have an extra set on hand that you can insert, you have to go through the performance of setting each knife and we all know that accuracy is very essential in order to get each knife to make its share of the cut.

Furthermore, in placing the thin knives on the automatic grinder, they are clamped and undergo a strain that is relieved when taken off the grinder bar. Now, then, by placing them in the cutter-head they are again clamped but by a different method, and the strain put upon them forces them to rake a different shape than when on the automatic grinder bar.

The effect of this is obvious. Your knife is forced to take a different position and if you run the jointer over them while the head is revolving you will find that some parts of the knife have been touched, while others have not. Then what is the conclusion? Your knives are ground crookedly. There is only one remedy, and that is, grind your knives when in the clamped position in the cutter-head. You will find that less of the knife is ground away by this method. Your knives will last longer. And last, but not least, you will have each knife making its share of the cut, and the finish of your stock is better.

### Veneered Doors

In the modern up-to-date dwelling the advantages of hardwood as an inside finish or trim are being more and more appreciated and the use of hardwoods for this purpose is correspondingly on the increase. The beauty of finish, permanency and general richness of effects which may be produced are such as to more than offset the increased cost as compared with some of the other woods, although this increase is not so great at the present time as some may imagine.

In fact, to render more popular the use of hardwood trim the cost has been reduced and the perpanence and stability of the wood increased. Effects that were impossible in the past are now easily obtainable and fine interior trim, both handsome and permanent, is more easily within the reach of the modest home builder to-day than it was to the man of wealth 15 or 20 years ago. Naturally these results have been largely accomplished by the efforts which have been put forth by leading hardwood veneered door manufacturers who have spared neither time nor trouble in bringing the beauties of hardwood as a trim prominently to the attention of the architect, the builder and the house owner. It is a well-known fact that a house finished in hardwood is much more salable than one which is not so finished and at the same time it tends to bring a much better price, while giving the occupant a vast deal of satisfaction.

In selecting the stock for the panels of the doors only the most beautiful woods are utilized and even in woods noted for their beauty it is only the logs of unusual beauty of grain and figure that are used for this purpose. These logs are taken for veneer and by cutting very thin are made into a great many faces, the plainer stock being used for less conspicuous purposes. Of all the woods that have been utilized for interior finish the leading hardwood door manufacturers are practically a unit in the opinion that Wisconsin birch is the most beautifully adaptable and serviceable for doors. In fact, they call Wisconsin birch the "Queen of the Hardwoods," and the appearance and behavior of the veneered doors made from it would seem to fully justify the name.

### Doing One's Best

A man really never knows when he has reached his best. Given a resolute will and fixity of purpose, the good of to-day can be made better to-morrow in ninety-nine cases out of one hundred. In the matters that really count progress and improvement are possible right up to the very gates of death—after that we fancy they will be still more possible. All that is necessary to make our own best a little better is the steady, upward striving. And it is a terribly crippling delusion that makes us think at any time that we have reached the highest and best that is possible for us, Nothing will send us down in standard of achievement and purposing quicker than to even secretly cherish that conviction. Our best may and ought to be ever ahead of us.—Selected.

### Trade Union Statistics

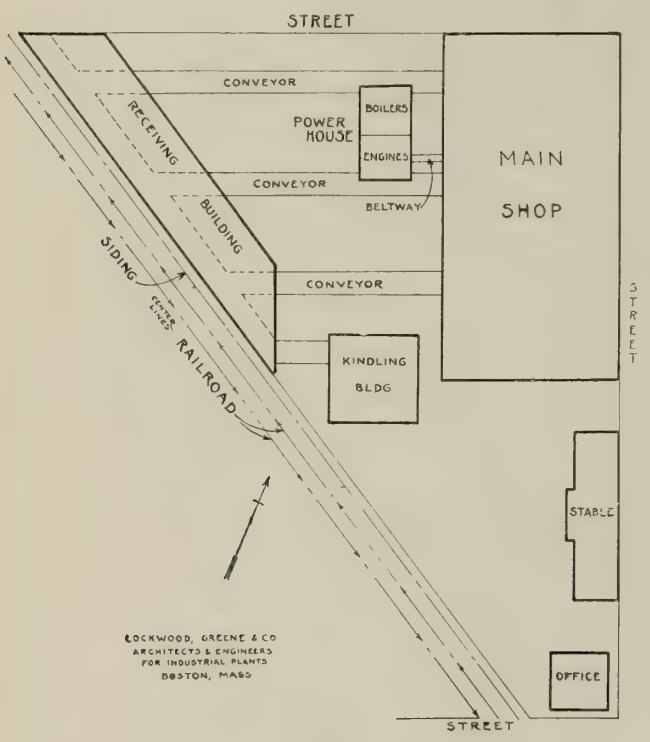
Germany leads the world in trades unionism with a membership of 2,688,144, the United States coming next with 2,625,000 members, and the United Kingdom third with 2,426,000.

# An Interesting Box Factory Layout

The profits to be derived from a box factory depends to a great extent upon the arrangement of the various buildings together with the means for handling the material from its raw form to the finished product and the disposal of the waste. This matter should therefore receive the closest study of architects and engineers before any arrangement is adopted.

As an example of what can be done in the way of an efficient plant arrangement for a box factory where the space was of irregular shape and limited, is afforded by the layout of the box factory as shown in the accompanying sketch. Here the owners had to make use of a triangular piece of property, bordered on two sides by streets, with the hypotenuse running along the railroad. The plan drawn by the engineers Lockwood, Greene & Co., Boston, Mass., and adopted by the company in question consisted in erecting brick and timber buildings, the receiving building being located adjacent to the railroad with the three conveyors leading from it to the main shop.

The arrangement has effected the simplest movement of material from the receiving building on the railroad line through the main shop and out to teams




which make the major portion of delivery. The raw material is transported from the receiving buildings to the main shop by three roller type conveyors which deliver the material into the feed rolls of the heavy planers located on the top floor of the main mill.

The cut-off machines, feeders, trimmers, and matchers all produce a considerable amount of sawdust as well as end clippings. Under each machine is a hopper through which this waste material is delivered to a conveyor located overhead on the storey below. These conveyors deliver to a common conveyor running at right-angles. This latter feeds a hopper provided with a screen of such mesh that the sawdust drops through, while the end clippings pass over the screen and on to another conveyor which runs outside of the main building and delivers the end clippings into the upper part of the shaving bin in the boiler house. This hopper is then shovelled by hand from the bottom of the bin hopper into the boiler for fuel.

For handling the sawdust there is a blower system by which the material is carried to the roof of the main building where it is delivered into a bin.

For collecting the shavings there is a second blower system independent of the sawdust system. There are connections from the heavy planers to the fan whence two pipes lead to the shaving bin on the top floor of the kindling buildings and to a collector on the top floor of the boiler house respectively. From the latter five discharge pipes lead, one to the shaving bin already mentioned, and one to each of the four boilers. At the point where the delivery pipe from the fan branches so as to go to either the boiler house or the shaving bin, a switch and percentage valve are located. This is to permit the boiler tender to keep an even air pressure on the fire beneath his boilers. The switch is connected up for operation directly from the boiler room floor.

A fourth system is in use for handling kindling wood. Strips are collected from the trimmers in boxes and wheeled to the kindling saws which are located near the end of the main mill opposite the kindling building. These saws cut the wood into proper lengths for kindling, the pieces dropping into hoppers unde the machines and then onto an inclined conveyor which delivers to a horizontal conveyor located overhead in the first storey. The latter drops onto a belt conveyor which delivers the kindling into a large bin at the top of the kindling wood building. The bin is of sufficient height so that carts may be driven in on the lower floor and be filled directly from the bin above.

As the power in this plant is entirely mechanical, all these conveyors and fans are operated by belts from the various line shafts. Wherever conveyors traverse open spaces between the buildings they are carefully housed in against the weather. The entire conveying system is so arranged that it will be a matter of little difficulty to add one-third to the equipment when the final six sets are installed in the main factory.

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### Enthusiasm

Enthusiasm is the greatest business asset in the world. It beats money, and power, and influence. Single-handed, the enthusiast convinces and dominates where the wealth accumulated by a small army of workers would scarcely raise a tremor of interest. Enthusiasm tramples over prejudice and opposition, spurns inaction, storms the citadel of its object, and, like an avalanche, overwhelms and engulfs all obstacles. Enthusiasm is nothing more or less than faith in action. Faith and initiative, rightly combined, remove mountainous barriers and achieve the unheard of and miraculous. Set the germ of enthusiasm afloat in your shop; carry it in your attitude and manner; it spreads like contagion and influences every fibre of your industry before you realize it; it begets and inspires effects you did not dream of; it means joy and pleasure and satisfaction to your workers; it means life, real and virile; it means spontaneous bed-rock results—the vital things that pay dividends.

### Furniture for Outside Use

Garden furniture of the modern sorts looks well, is not expensive and will stand hard usage. It is called garden furniture, or lawn furniture, or porch furniture, just as you please to designate it, for it is equally adaptable to garden, lawn or porch, or it can even be placed indoors if your house is a bungalow or a summer cottage or some other type.

The chief characteristic of this furniture, its ability to stand up under any weather, qualifies it preeminently for service out in the open. It is good on the cottage porch, but not as good there as reed, wicker, willow or rattan, while there is nothing better for use under the trees or on the open stretches of lawn as garden furniture. Neither sun nor rain can harm it and it fits in any landscape.

This out-of-door furniture is either portable or stationary. In the former class there are chairs and settees of innumerable designs, tables, flower stands, flower boxes, couches, tabourettes, Indian seats, lawn vases and so on. Among the stationary furnishings are large lawn seats, with or without canopies; swing stands and the swings themselves, summer houses, pergolas, fences, bridal harbors and gates. It may be stretching it a trifle to call all these things furniture, but that is the custom in the trade, and the stationary pieces are found side by side with the portable in the stores and in the catalogues.

Hickory is one of the staple woods of the genuine rustic furniture. Young hickory saplings are used for the framework. If cut in the fall the bark will always adhere to the wood, it is declared. For the backs and seats of chairs, settees and swings the tough inner bark of the hickory is cut into long, thin strips which are closely woven in the familiar over and under pattern. This kind of seating is tough and durable, but elastic and comfortable.

Red cedar is another wood much used for rustic furniture. The rather soft, long shaggy bark is left untouched, but much of it adheres to the wood so loosely that it must wear away for a while.

### Making Wooden Shoes in Europe

The making of wooden shoes is followed with considerable vigor in Europe. Particularly is it a lively business in Holland, and we learn by way of Frank W. Mahin, the U. S. representative at Amsterdam, that for a year the Dutch wooden-shoe industry was unfavorable to the manufacturers of that country owing to the decided overproduction there, and to the keen competition of the Belgians. This year's prospects are somewhat brighter.

The scarcity of willow wood, from which those shoes were formerly made, has caused the market to steady up a little. Poplar and some Russian woods are also being used more extensively than heretofore.

The cost of the wood from which the shoes are made is about $6 per cubic meter, a cubic meter equals 35.32 cubic feet, out of which 100 pairs of ordinary size can be made. The wholesale price of these shoes is 12 cents. One workman is able to make 12 to 15 pairs in a day, from which it can be inferred how narrow is the margin of profit in the industry.

Relatively few wooden shoes are produced by machinery for export, but with this exception all the wooden shoes are made by hand in Holland. About 20 different tools are required in the operation. A year or so ago several German capitalists started factories in Holland to make wooden shoes by machinery, but failed. The machine-made shoes, it is said, were not well finished, and some handwork was always necessary to make them satisfactory.

### Room for Industries

The present water power development in Canada is estimated by the Department of Interior at only 486,887 horse power. If manufacturing in Canada increases commensurately with the development of this now latent power, what a hive of industry there will be extended throughout the length and breadth of this Dominion, and this surmise takes no account of the almost unfathomable coal deposits yet unearthed.

Raw materials must exist as well as power, however, and fortunately those manufactures in Canada representing the greatest amount of capital are most closely allied with operation by the vast resources of natural power. To estimate roughly in round numbers, based again on the special census of 1905, the manufactures in order of importance with their representative value are as follows:—Timber, lumber and their products (other than steel), 140 millions; food products (chief of which would be flour, meats and canned fruits), 120 millions; textiles, 100 millions and iron and steel products, 80 millions. All of these industries, one may readily see, are based on supplies, which are the most abundant of our natural resources, and they also lend themselves easily to operation by the various falls and rapids, which go to make up Canada's 25 millions of natural horsepower.

We have the raw material, the power and the market. All that is necessary is the capital and labor to do the work.

### Fire in Owen Sound

The big saw mill of the Carney Lumber Co. at Owen Sound was wiped out by fire entailing a loss of about $150,000. The origin of the fire is not known.

### Saw Mill Robbed

Robbers entered the office of Ratz & Co., saw mill owners, at Wellesley, Ont., and obtained about $3,000 in notes.

### Saw Mills Burnt

The two saw mills owned by Graves, Bigwood & Co. at Byng Inlet, Ont., were burnt, the box factory, the power plant, and the stock of lumber in the yards being saved.

The company cut 55,000,000 feet annually and make 5,000,000 lath in addition to the product of the box factory. The loss is about $250,000. It is not known whether the company will rebuilt.

The destruction of these mills and that of Carney Bros. at Owen Sound may cause the Charlton mill at Owen Sound to commence operations. Negotiations are now going on.

### Stave Factory Flooded

Malloy & Bryan's stave factory was nearly flooded out at Haliburton, Ont., on account of high water in the lake.

### Doing Scroll Work on the Band-Saw

A good sawyer with a small band-saw can do lots of scroll work that was formerly done on the scroll-saw altogether, and do it easier and faster. But when it comes to inside work, it is better to stick to

the scroll-saw and not cut through to the inside of a bracket, for example, with a band-saw, for the sake of doing the inside scrolling. No matter if you do glue the joint together, it shows and makes the job look cheap. Use the band-saw where you can, but don't abuse the work for the sake of avoiding the use of the scroll-saw. One is an inside machine and the other is the outside machine.

### Western Population

The following table, compiled from the Dominion records, shows some striking facts:

| | Pop. 1901 | Pop. 1911 |
|---|---|---|
| Alberta | 73,022 | 372,919 |
| British Columbia | 178,657 | 362,768 |
| Manitoba | 255,211 | 454,691 |
| Saskatchewan | 91,279 | 453,520 |

This is a total increase of 174 per cent.

### A Trick in Sawmill Practice

Even a good many veteran sawmill men have never caught on to the scheme of delivering logs in the right way to the log deck. Logs should be delivered so that the top or small end of the log first reaches the saw, so that both the sawyer and edgerman can properly judge the slab and edge trimming, and not make unnecessary waste in manufacture. Thin slabbing has become a necessity in money-making in hardwood production, and many hardwood men are still notoriously wasteful in slabbing too heavily.

### Wood Engraving

It has never been satisfactorily ascertained whether the art of wood engraving came to Europe from the east or was rediscovered by some European artificer. The precise date of the first European woodcut is also a matter of serious doubt, but we have data which enables us to come pretty close to the right time. We know that European wood engraving dates certainly from the first quarter of the fifteenth century. There is considerable evidence to show that the art had its origin among the Chinese.

## CANADA'S FIRE LOSS

### It Totalled Over $2,250,000 for Month of May

The Monetary Times' estimate of Canada's fire loss during May amounted to $2,251,055, and $2,564,500 for the corresponding period last year. The following is the estimate of the May losses:—Fires exceeding $10,000, $1.904,700; small fires, $53,400; estimate for unreported fires, $293,715.

There were 18 fatalities from fire, making 95 for the year to date.

### Painting a Cistern

A way to prepare a sanitary cistern is by painting it with two coats of "water glass" or glass paint. The painting insures the softness of the water, since no chemical action can take place between the walls and the water. It also keeps the cistern from leaking and prevents pollution of the main part of the cistern by surface or subsurface water.

### Forestry Convention at Victoria, B.C.

On the invitation of the Government of British Columbia, the next convention of the Canadian Forestry Association will be held in Victoria, B.C., September 4 to 6. While matters relating to Pacific Coast timber will be particularly dealt with, subjects relating to Canadian forests in general will be discussed by leading authorities. The president of the association, John Hendry, of Vancouver, in conjunction with the provincial authorities, is arranging the details.

Aluminum pulleys for machinery are said to lessen the friction and thus extend the life of belts.

An international conference of the Association for the Prevention of Industrial Accidents will be held in Zurich, Switzerland, next September.

Two heads may be better than one, but frequently a little single-head planer can be made to do smoother work than its big double-headed brother.

### To Urge a Lumber Duty

R. F. Green, who will be the new member from Kootenay in the Dominion Parliament, will urge the imposition of a protective duty on rough lumber from the United States. There is no expectation, however, that he will get this. The prairie provinces will elect 43 members of the Dominion Parliament at the next elections; and three dozen of these constituencies will be controlled by farmers who have views of their own on the subject of a duty on lumber. The present provision for free lumber was made by a Conservative government, and it would be a dangerous if not fatal blunder for the present government to repeal it.

### Big Log Jam

A sight not witnessed on the Miramichi for twenty years was the jamming of nearly the whole of a gigantic lumber cut near Chatham, N.B. Between sixty million and seventy million feet of logs are compressed within a distance of three-quarters of a mile, reaching from shore to shore, and extending from the bottom of the river to a height in places twenty feet above the level of the water. The value of the logs approximates $600,000. Recent heavy rains swept them before the rising flood. Dynamite will have to be used, it is said, to loosen the logs and enable the boom company to sort them out and make them into rafts for the lumbermen.

### Mahogany Logs Reach Toronto

The Rosedale Saw Mill Company have received a shipment of 16 mahogany logs from South Africa. Each log averages 20 feet in length, is three feet square, and cost $1000, making a total cost for the shipment, of $16,000. It is said that the material is to be used as veneer and trimming for the new government house at Chorley Park.

The sawdust has been sold beforehand. It is to be used in making high class fibre ware.

The Portage La Prairie, Man., civic council held a meeting behind closed doors the latter part of May, and we are informed that the purpose of the meeting was to decide on a proposed by-law to be submitted to the people to fix the taxation for Matchinbacker Bros., who contemplate establishing a large saw mill in Portage. They have been having trouble with the C.N.R. over spur track arrangements, but it is understood that this matter has been settled, and that the railway is ready to build as soon as concessions are granted by the city.

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Sliced Poplar 1/8 to 5/16 in.

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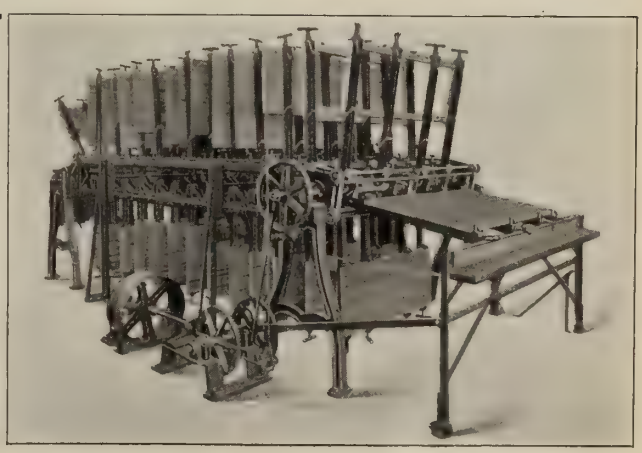

# From Coast to Coast

### Change of Management

Mr. Frank C. Cheston, who has been, up to the present sales manager of the Canadian Linderman Machine Co. Ltd., of Woodstock, Ont., has been appointed general manager of the company's affairs and is now in charge of the plant as well as the sales end of the business.

Mr. Cheston informs us that business for the past year, since the company's inception in Canada, has been very satisfactory, over twenty machines being placed in shops of various descriptions. What is most satisfactory to the company is that plants which were amongst the first to install machines, have in several cases installed one or two more to take care of all their work.

### Great Activity in Regina

The Security Lumber Co. with headquarters at Moose Jaw, opened up a yard in Regina a few weeks ago which is the largest in the chain of 60 yards operated by this company in that province. While the company guaranteed to erect a yard with buildings to cost about $3,000 when they purchased the half block from the city, they have already expended between $10,000 and $12,000 in the plant.

The yard is in charge of J. H. Flock, recently from Blair, Neb., who has caused the yard to be planked throughout at an expense of nearly $3,000. It has a capacity for two million feet of lumber, besides a large quantity of all kinds of building supplies. The dry shed is 240 feet long.

The Lumber Manufacturers' Yards, Limited, entered their new office at Regina recently. This is the headquarters for a system of 41 yards, which will shortly be increased to between 50 and 60.

### Big Factory to Make Buses

A. J. Halford, Canadian representative of the English Bus Company that intends to operate buses on Toronto's streets, said that his company would erect factories in Toronto that would cost for construction and equipment, a half million dollars.

The difficulties arising from British labor troubles and shipping delays had led to a realization that to successfully operate buses in the cities of Canada they had to be surer of their supply than they were at the present time, when their buses come from England. It is the intention of the company to run buses not only in Canada, but in cities of the States, Mexico and the Central American countries. They will make all of them here, and as the numbers are expected to run up into the thousands yearly, it means a big plant, and the employment of many hundreds of men.

The site for the factory has not been secured yet, but Mr. Halford intimated that he had properties under consideration.

### Floods in Quebec

High water has done $40,000 damage at Scotstown, Que. The Pemberton Lumber Company's dam has been swept away and the electric power station at the south end of the structure destroyed. The town will be without light for an indefinite period. Two hundred feet of the Canadian Pacific Railway tracks was washed out.

### Penetang Sawmill Burned

The large sawmill of the C. Deck Company, near Penetang, Ont., was wiped out of existence by a spectacular fire, believed to have originated in an overheated bearing in the engine-house, which came dangerously close to sending the whole town up in a blaze.

The destroyed mill, which was one of the largest and most modern on the Georgian Bay, was housed in a frame structure, and will be a total loss. The engine-house, of concrete and brick, was completely gutted, and the valuable machinery it contained has been rendered useless for the future. Two or three piles of lumber caught the blaze and were damaged to some extent, as also were two nearby houses occupied by workers in the mill.

The fire started, it is thought, through blazing oil from one of the bearings in an engine being scattered about the floor of the machine room, whence it spread like lightning to the adjoining frame structure and enveloped the latter in a mass of flames. It was discovered shortly after three o'clock, and burned fiercely for over three hours.

### Big Lumber Limits Sold

The John Carew Lumber Co., Ltd., of Lindsay, Ont., have bought from W. D. Lummiss, President of the Cavendish Lumber Co., of Lakefield, Ont., all their limits in the township of Harvey, consisting of 31½ square miles, or 20,000 acres of timber. This is all heavily timbered with choice pine, hemlock, cedar, basswood and hardwood timber. The shanties, stables, etc., are all new and the Cavendish Co. have recently spent several thousand dollars on new dams, etc. Everything is ready for cutting and the John Carew Lumber Co. will put in several gangs of men this fall.

This with the other large limits of the Carew Co., gives them a guarantee of fifteen to twenty years' cut, but whether the Harvey timber will be brought to Lindsay or Peterboro is not yet decided.

Should the company feel disposed to float the product of this vast timber limit to Peterboro or Lakefield instead of hauling it up to Lindsay, several thousand dollars would be saved each year in this way, so it is obvious that it would be to the interest of the John Carew Lumber Co. to give this matter the serious consideration which it deserves.

This prosperous lumber concern employs a large staff of men the whole year round, supplying work in their large box factory, shingle and saw mill in the summer and in the lumber camps during the winter months. A staff of at least 200 men are continually on the pay roll.

### Suicide of Well Known Lumberman

Willis P. Shelton, who shot himself in Tacoma, was well known at Portland, Ore., having worked here for the Whitney Company, Limited, a lumber firm, as superintendent. He had invented a device

# OPPORTUNITIES

**Advertisements inserted on this page for "Positions Vacant" or Positions Wanted" twenty-five cents per insertion.**

which he believed greatly facilitated the handling of logs and was to make an address on this invention at the annual meeting of the Pacific Logging Congress to be held in Tacoma July 25, 26 and 27.

### Buzz Saw Burst

Henry Graham of Lyn, Ont., who owns and operates a portable saw mill, was using the machine with a buzz saw. Suddenly it burst in four pieces, one of which struck him on the head with great force, making an incision in the skull about six inches long and penetrating the brain. His recovery is doubtful.

### Industrial Accidents in May

There were 289 industrial accidents reported to the Department of Labor during May. Of these 62 were fatal.

Of Canada's trade last year $512,000,000 were imports and $285,000,000 exports.

The amount paid out by fire insurance companies in Canada last year was almost $11,000,000, as to be exact $10,937,159, an increase of $644,766 as compared with 1910.

### Busy Times for Kenora

The lumber and tie mills at Kenora, Ont., are now all running and the busy hum of industry is everywhere in the air. The two big saw mills of the Keewatin Lumber Co. and the Rat Portage Lumber Co. have been cutting for some time.

The Rat Portage Lumber Co. at Kenora intended to put on a night shift at the big saw mill about June 1st, and will run night and day during the season.

J. W. Shortt's tie mill at Kenora starts the season's cutting and will be a busy hive of industry till next November or December. There will be no lack of logs this year as the plenteous supply of water has made it possible to get all the winter's cut out.

With the Keewatin Lumber Company's saw mill running night and day this will make the busiest summer in the history of Kenora's lumber trade.

### Electric Tie Mill Running

Kendall's tie mill at Norman, Ont., has commenced cutting, and will be busy till the freeze-up. This mill is the only one in the district which is run by electricity, the power being supplied from the town plant.

### Lumberman Drowned

M. A. Hegberg, a Swede employed by the Keewatin Lumber Co. of Winnipeg, was drowned.

**Manufacturers** Know that good work depends to a great extent upon good workmen. If you wish to get in touch with this class of men insert your want ad. on this page—the best men in the woodworking trade read it.

Wanted—Experienced operator of the Linderman Dovetail Jointer and a Crosscut Sawyer for an Eastern box factory. Must be steady worker and sober men. Work 12 months in the year. Apply stating age, experience, who with—A.B.C., CANADIAN WOODWORKER.

Wanted—Experienced man for swing-saw; steady work. Thomas Organ & Piano Company, Woodstock. b

Wanted at once, factory carpenters and cabinet-makers, also two good woodturners for Sash, Door and Fixture factory. Only strictly temperate, first-class men need apply. Large modern factory, open shop, no trouble. Apply stating wages, experience, etc., to The Western Mfg. Co., Ltd., Regina, Sask.

Wanted—Two spindle carvers, six cabinet-makers, four trimmers, four machinists and four finishers. Highest wages to first-class mechanics. State age, experience and where worked. The George McLagan Furniture Co., Limited, Stratford, Ont.

BOOK-KEEPER—Thoroughly competent and aggressive, desires position with lumber firm in Ontario as accountant or manager; 18 years experience and acquainted with all departments of the lumber and woodworking business; at present engaged; aged 40; married; best of references. Apply Box No. 10, CANADIAN WOODWORKER.

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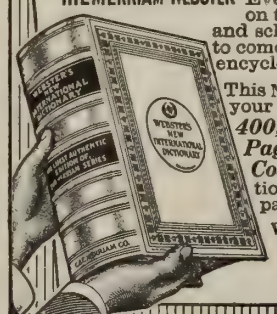

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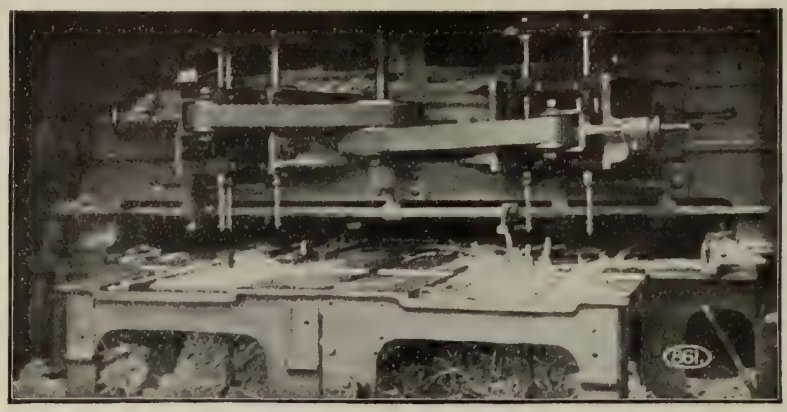
### Caught in Moving Belt

Robert Page, a mechanic, employed in the Grand Trunk machine shop, Belleville, Ont., was caught in a revolving belt and thrown violently to the floor, sustaining a fracture of the right leg and other painful injuries.



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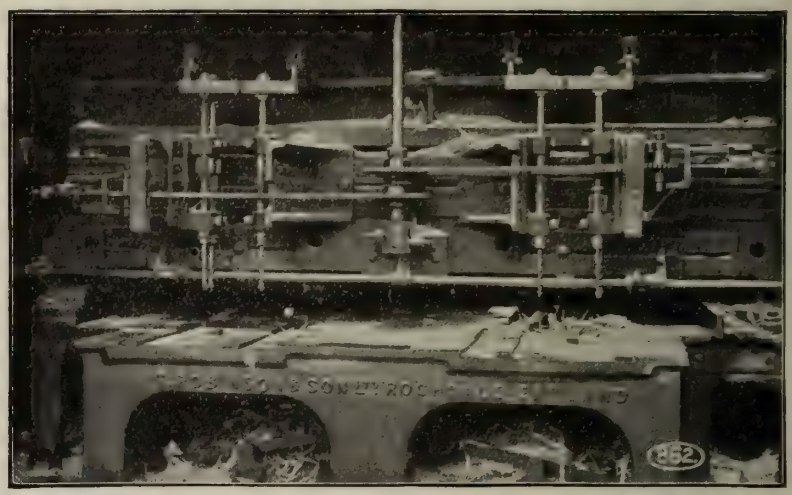

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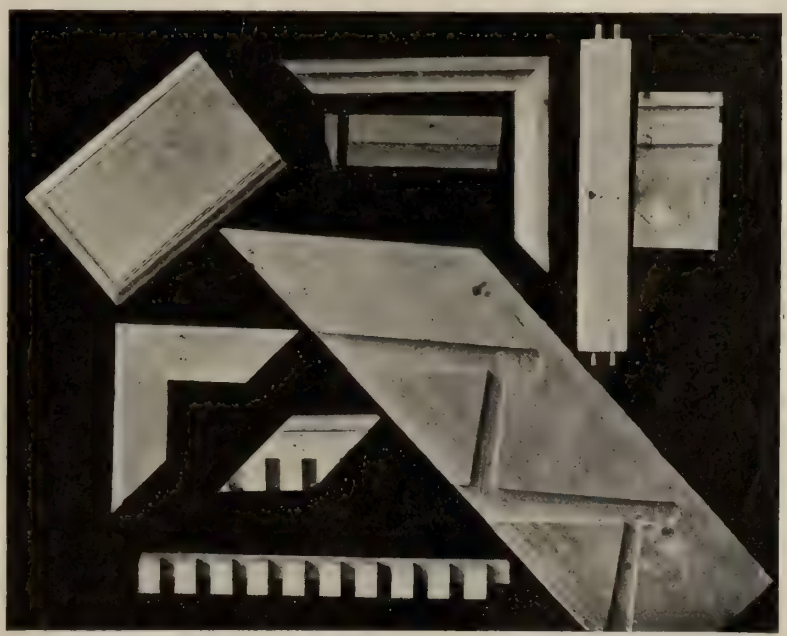

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R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinatti, O.

Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

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Canada Machinery Corporation, Ltd., Galt, Ont.

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Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Canada Machinery Corporation, Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
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J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
J. M. Nash, Milwaukee, Wis.
Ober Mfg. Co., Chagrin Falls, O.
Fisher Sander Co., Berlin, Ont.
Black Bros. Machinery Co., Mendota, Ill.
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SAND.
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SANDPAPER.
Black Bros. Machinery Co., Mendota, Ill.

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C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Samuel J. Shimer & Sons, Milton, Pa.
Black Bros. Machinery Co., Mendota, Ill.
H. W. Petrie, Ltd., Toronto.

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Shurly Dietrich Co., Ltd., Galt, Ont.
E. C. Atkins & Co., Hamilton, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
Simonds Canada Saw Co., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.

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Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.

Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

SAW SWAGES, AUTOMATIC FILERS.
E. C. Atkins & Co., Hamilton, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

SAW TABLES.
Canada Machinery Corporation, Ltd., Galt, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

SCRAPING MACHINES.
Baxter D. Whitney & Son, Winchendon, Mass.

SCROLL SAWS.
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Shurly Dietrich Co., Ltd., Galt, Ont.
E. C. Atkins & Co., Hamilton, Ont.
Simonds Canada Saw Co., Montreal.
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Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Plessisville Foundry, Plessisville, Que.
Samuel J. Shimer & Sons, Milton, Pa.
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Hespeler Machinery Co., Ltd., Hespeler, Ont.
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STAVE SAWING MACOINE.
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Reflector & Hardware Specialty Mfg. Co.

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Mussens, Ltd., Montreal.
Baxter D. Whitney & Son, Winchendon, Mass.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

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Canada Machinery Corporation, Ltd., Galt, Ont.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Plessisville Foundry, Plessisville, Que.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
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H. W. Petrie, Ltd., Toronto.

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Thos. White & Sons, Paisley, Scotland.
J. A. Fay & Egan Co., Cincinnati, O.
C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Baxter D. Whitney & Son, Winchedon, Mass.

TENONING MACHINES.
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Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
The Goldie & McCulloch Co., Ltd., Galt, Ont.
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J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
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Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.

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Sheldons, Ltd., Galt, Ont.
Hespeler Machinery Co., Ltd., Hespeler, Ont.

TURNING MACHINES.
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J. A. Fay & Egan Co., Cincinnati, O.
C. Mattison Machine Works, Beloit, Wis.
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Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Plessisville Foundry, Plessisville, Que.
Baxter D. Whitney & Son, Winchendon, Mass.
H. W. Petrie, Ltd., Toronto.

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Mussens, Ltd., Montreal.
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VISES (Circular Saws).
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Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
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Plessisville Foundry, Plessisville, Que.
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Hespeler Machinery Co., Ltd., Hespeler, Ont.
Ober Mfg. Co., Chagrin Falls, O.
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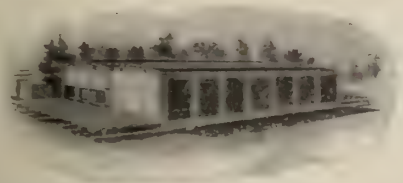
## MORTON MOIST AIR DRY KILN



The Most Perfect Dry Kiln on the Market

The "Morton" has a reputation for drying oak, maple, birch and beech quicker and better and with less steam than any other method—excepting none.

Write for our New Catalog "W"

**Morton Dry Kiln Co., Chicago, Ill.**

If you only knew, you would not **waste** money by throwing away your

## BROKEN CASTINGS

But would send them to me to be brazed and made as strong at break as other part.

I am now doing this class of work with unqualified success. Positively guaranteeing each joint. A trial will convince you.

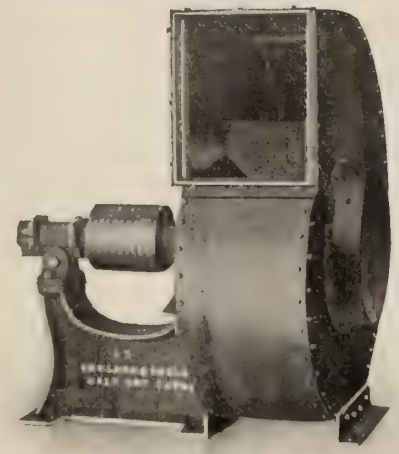
Send me a sketch if break is in gear or circle casting and I will advise you.

**W. H. DUNNE, 1492 Queen St., West, Toronto**

Long Distance Phone Park 420

The New Slow Speed

## Sheldon Exhaust Fan



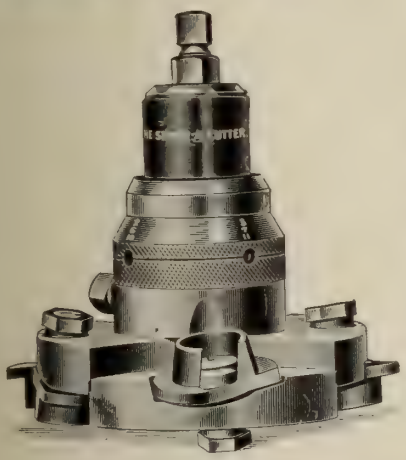
**The Fan that is revolutionizing the Shaving Exhaust Business**

It will handle wet or dry, long or short shavings and sawdust, and will do this work with a guaranteed reduction in speed of from 25% to 40% less and with a power consumption of 20% to 35% less, than any other exhaust fan. The Casing is very similar to that formerly used, but the wheel is of an entirely different design.

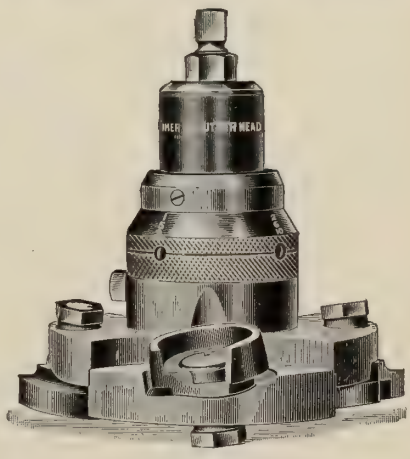
Let us tell you more about it

**SHELDONS LIMITED - Galt, Can.**

## REDUCE RUNNING EXPENSES



**Tools that maintain a uniform shape of pattern, and for an indefinite period, save time--save labor--save running expenses.**



THE SHIMER CUTTER HEADS offer you these several advantages. They furnish a system for making Flooring, Ceiling, Siding, Jointing, Ship Lap, etc., that removes the difficulties incident to the use of every other make of Cutter Head. These tools save actual labor—save machine time—put out a product faultless in form and finish.

The Shimer Cutter Heads are as simple as a saw to keep in order. The set of the Bits for point and edge clearance is a permanent "make-ready" which clears away all friction and protects the cutters from burning and excessive wear.

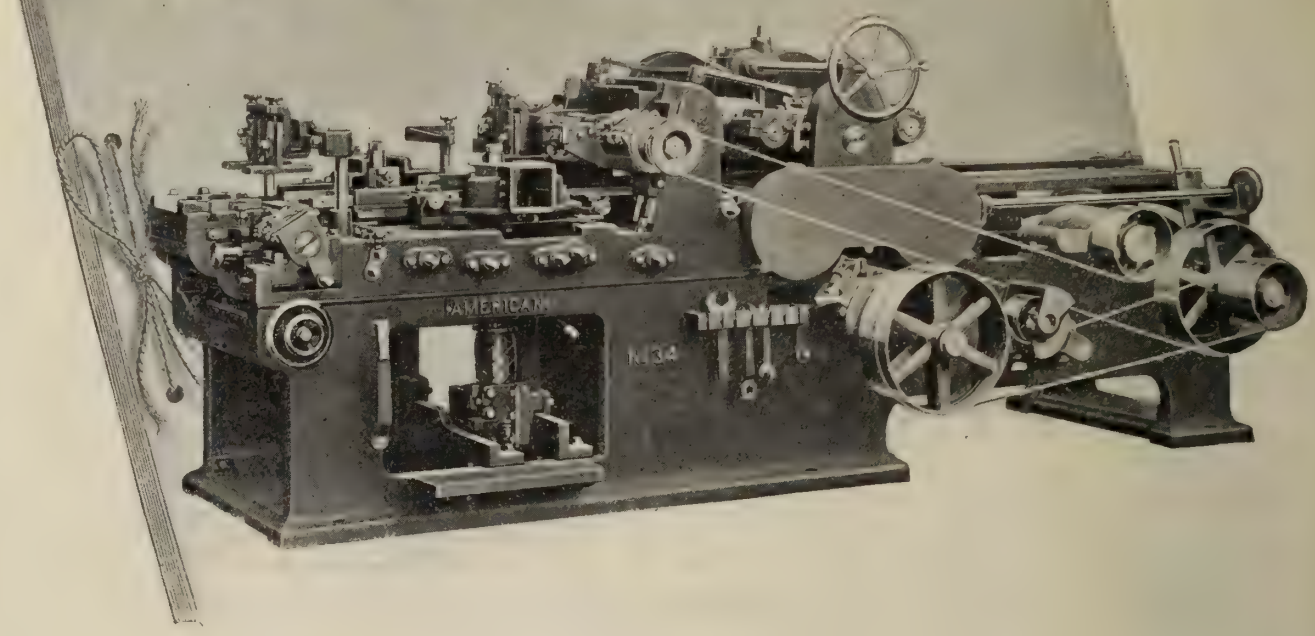
The cutters are divided into upper and lower series, parting the chip in the middle of the cut, permitting of a most complete expansion or contraction of the tongue and groove proportions by the turning of a single lock nut. This expansion feature regulates the fitting as close as one-third of a sixty-fourth of an inch. If the Bits are a little dull and you wish to finish the day without sharpening, you can turn the spanner ring one notch to enlarge the groove ,or reduce the tongue) when the fitting will again be in perfect shape.

If you wish to reduce running expenses it will pay you to study the advantages offered by the Shimer Cutter Heads. There is nothing like them for Strength—for Reliability—for Fast Cutting—for quick Adjustment—for all-round work and lasting qualities.

**SAMUEL J. SHIMER & SONS, GALT, ONT., CAN. Branch at Milton, Pa.**

# 34

American
No. 34 Inside Moulder




¶ Furniture Factories requiring a new **Inside Moulder** will be interested in the new **American No. 34.** The last machine on the market; a 1912 product.

¶ We shall be glad to have your request for a copy of the above book which contains full description and illustrations of this machine.

¶ If any one tool of our line is more deserving than any other, of our slogan **"First in Quality"** it is perhaps, this **Moulder.**

***Send your request for the book to-day.***

SALES OFFICES:
NEW YORK
90 West Street
CHICAGO
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NEW ORLEANS
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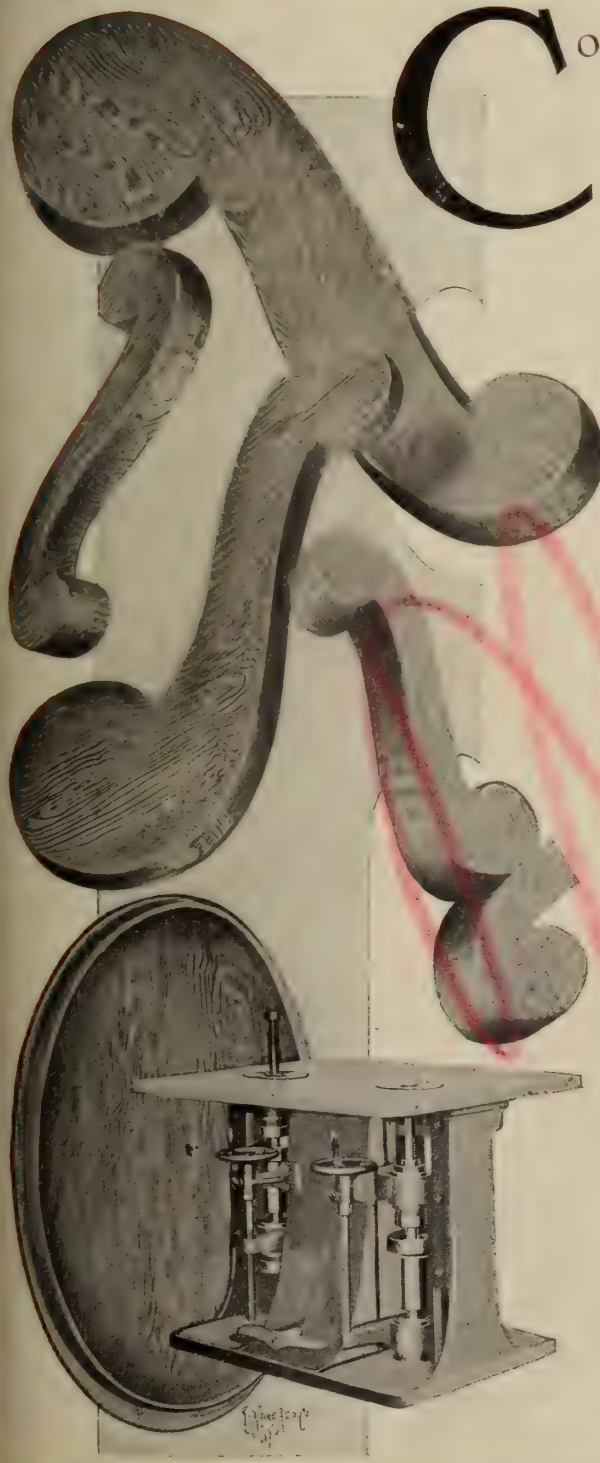
**American Wood Working Machinery Co.**

Executive and General Sales Office:
ROCHESTER, N. Y.

SALES OFFICES:
PORTLAND ORE
First & Pine Streets.
SPOKANE, WASH.
314 W. Pacific. Ave.
SAN FRANCISCO
46 Fremont Street.

CANADIAN WOODWORKER

Toronto, July, 1912



COMMON SENSE dictates that perfect shaper work, — the kind that does not have to be gone over, can only be done by extremely high speed spindles on a machine which is free from vibration.

If you have ever seen the

# Whitney
## 2 Spindle Shaper

in operation, you will realize what we mean by doing thoroughly first class edge shaping at a single stroke without tinkering around afterward to clean up.

The Spindles of the Whitney Shaper are ground from a standard quality steel, fitted into conical boxes and balanced to perfection.

The excellent method of lubrication of the spindles makes it possible to drive them continuously without heating at the rate of 7,000 revolutions per minute on medium or heavy work and at 1,200 revolutions per minute on the light work machine.

If you make the request, we will send you our Shaper Catalog together with samples of Whitney Shaper work.

## Baxter D. Whitney & Son

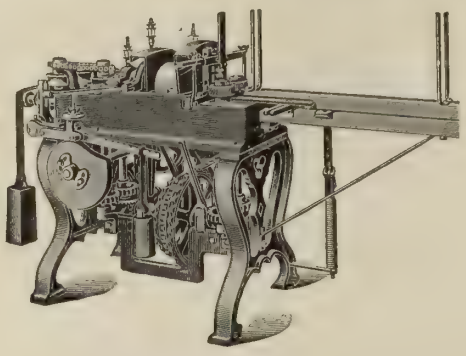
WINCHENDON, MASS.

Pacific Coast Sales Department, H. H. PLUMMER, Manager
Pacific Building, SEATTLE, WASH.

Selling Representative, HENRY KELLEY & COMPANY,
26 Pall Mall, MANCHESTER, ENGLAND

This is a Cut of the

# No. 10 Ober Lathe



for turning Fork, Hoe, Rake, Mop, Broom and Ice Hook Handles, Pike Poles, Tent Poles Trolley Poles, Curtain Poles, Chair Bows, Dowels, Rods and similar work.

**Simple Strong Durable Economical**

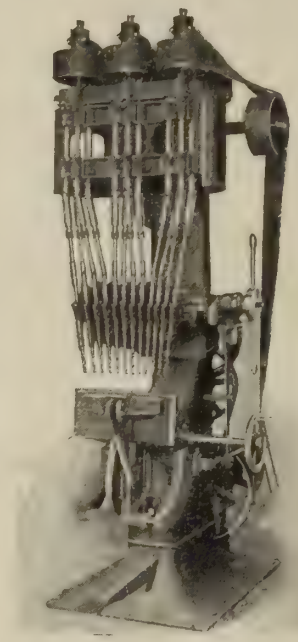
We also manufacture other lathes for making Spokes, Handles and Variety Work, Sanders, Shapers, Boring and Chucking Machine, etc.

Complete Catalogue and Price List Free.

## The Ober Mfg. Co.

31 Bell St., CHAGRIN FALLS, Ohio., U. S. A.

# SAVE MONEY



In the boring of your chair seats and backs by using the

## Nash Twelve Spindle Universal Boring Machine.

It will bore all spindle and post holes at one operation in 1,000 to 1,200 chair seats per hour.

It will also do a large variety of boring, using any number of bits from one to twelve.

Spindles adjustable to any angle up to 35 degrees, and from 1-inch center to center to 24 inches apart.

## J. M. NASH

842-848 30th Street :: Milwaukee, Wis.

# Guaranteed Not to Crack or Split

Our solid bored colonial columns, an illustration of which is shown here are manufactured by a special method which makes it possible for us to guarantee them not to crack or split.

The shaft and all the trimmings are each manufactured from a solid piece of timber and are fully up to measurements.

There are absolutely no joints to open up in either the shaft or the trimmings. The neck mould is turned solid on the columns.

The design of the shaft is such that there is no taper in the lower 30", thereby enabling you to furnish all special short lengths from stock of the standard eight foot **Solid Bored Colonial Columns**, by sawing off the lower end of shaft.

Do not wait until you need columns, but anticipate your wants in advance and order now.

We furnish Columns in any size or length; send architects plans and let us figure with you.

## The M. Brennen & Sons Mfg. Co.

HAMILTON, ONT. Limited

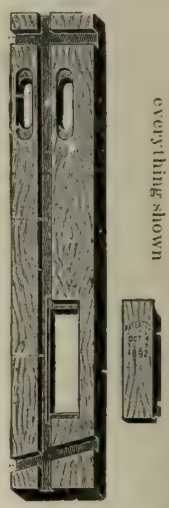
# MAKE WINDOW FRAMES

**Why Not, Mr. Millman ?**

***There is nothing Better if You Go at it Right***

What you want is a machine to do the entire work—just as shown in cut. With it, frames are made the cheapest, yet the finished article is more acceptable than if produced by other methods. The machine will earn you substantial profit and enable you to make more prompt deliveries than your competitor, which means **you** get the business.

Window frames are profitable, and permit the sale of low price lumber at a good figure just by making up the parts. Let the carpenter nail up the frames if he insists.



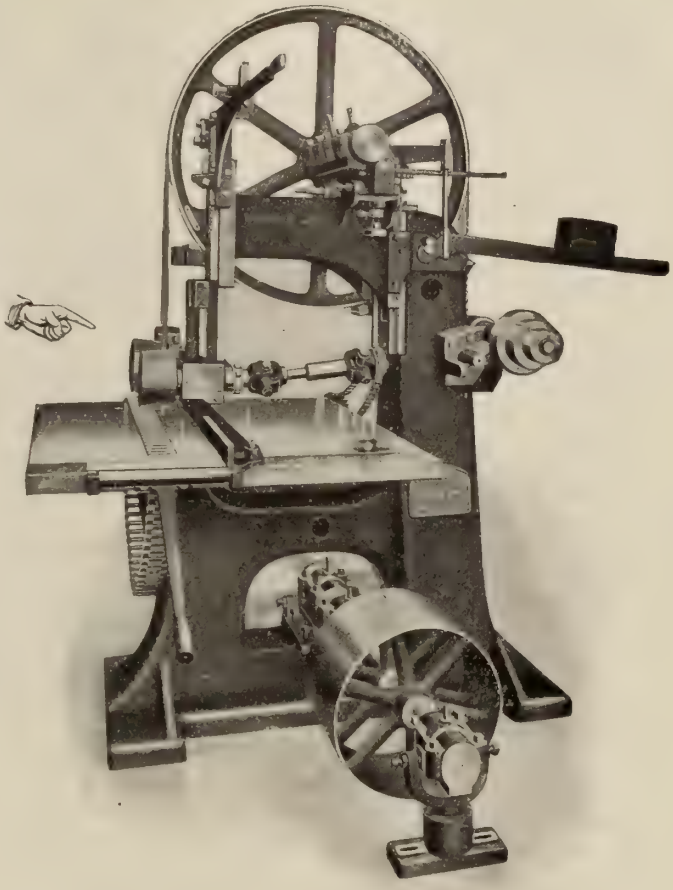
Machine does everything shown

**We are ready to furnish information**

## Smith & Phillips Mfg. Co.

412-422 N. Sangamon St., Chicago

# See That Chain——→



—"It saved $70 a week in wages and 1 inch of lumber on every half table top and on every two fillers or leaves."

ST. JOHNS TABLE CO.,
CADILLAC, MICH.

—"It increased the output of our edging department 100 per cent."

AMERICAN FURNITURE CO.,
BATESVILLE, INDIANA

# The Fay-Egan No. 202

## Band Rip and Edging Saw

(Patented Feb. 27, 1900; Oct. 2, 1900; Nov. 19, 1907; Jan. 21, 1908)

has effected large savings in time, labor and lumber in many plants—it will do the same for you—give it a chance.

Remember the No. 202 is not only an edger—it can instantly be changed to an Automatic Band Rip Saw. All Ripping and Edging is done on the same machine—no time is lost in trucking material—right now is the time to investigate the Fay-Egan No. 202.

WRITE TO-DAY FOR FURTHER DETAILS AND ILLUSTRATIONS

# J. A. FAY & EGAN CO.

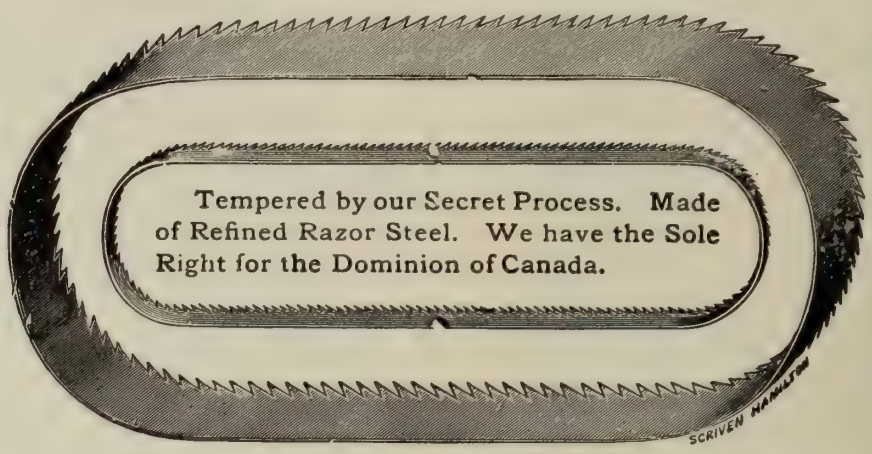
Manufacturers of Woodworking Machinery
THE "LIGHTNING" LINE
153-173 West Front Street, - - - CINCINNATI, OHIO

# Maple Leaf Saws

MADE BY

LARGEST SAW MANUFACTURERS UNDER THE BRITISH FLAG

We manufacture Circular Saws Gang Saws Mill Saws Band Saws Cross Cut Saws Buck Saws Saw Setts etc.




We manufacture high-grade **Band Saws** of all Widths and Lengths

These Saws are made of Refined Razor Steel, and Tempered by our Secret Process; for Fine Finish and Temper are not excelled.

**"Maple Leaf" Saws** are the best-tempered saws made

We are the only manufacturers in the world who export Saws in large quantities to the United States

**Shurly-Dietrich Co., Ltd.** **Galt, Ont.**

Western Warehouse and Office, Vancouver, B.C.

A GOOD, USEFUL BOOK

## Wood-Working for Amateur Craftsmen

"Written So You Can Understand It" By IRA S. GRIFFITH, A.B

125 Illustrations 128 Pages
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**Price 60 Cents Postpaid**

This book was especially designed to cover every essential step from the A B C to the X Y Z of woodworking. The chapters dealing with making special articles bring out every cut joint and process used in this important trade, and the proper use and care of tools, working up of materials, etc., are treated thoroughly and plainly.

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**A valuable book for either self instruction or use in manual training courses.**

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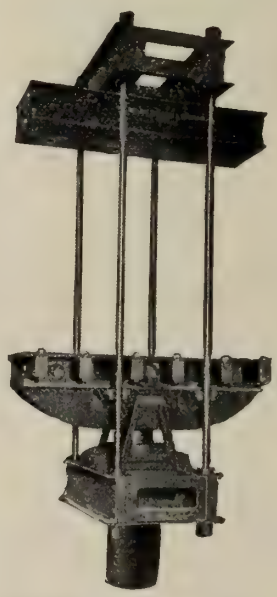
**Canadian Woodworker**

## Hydraulic Veneer Press



We build these presses in all sizes and styles for all kinds of Veneer work

**Write us for Prices**

**William R. Perrin & Company**
**Limited**
TORONTO

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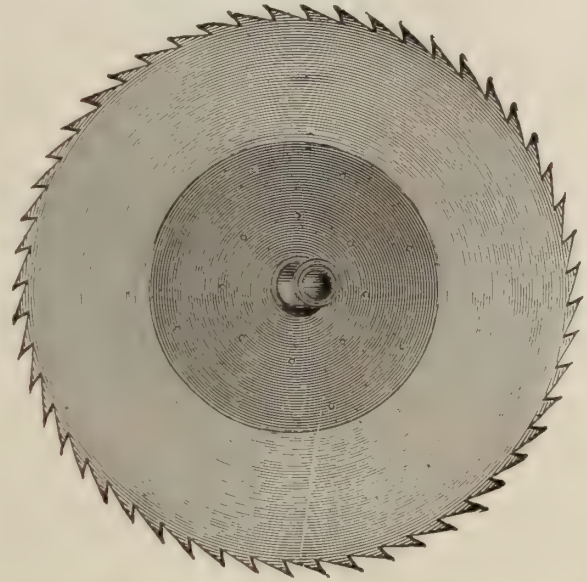
## St. Catharines, Ontario

MANUFACTURERS OF THE CELEBRATED "GOLD COIN" SAWS

**We make Inserted Tooth Saws, Shingle Saws, Cross Cut Saws, Hand Saws, etc., etc.**

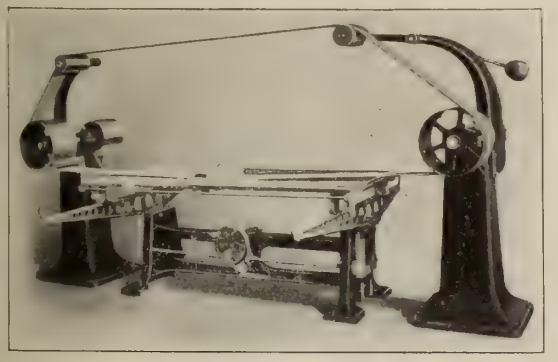


**We make every kind of Saw required in Saw Mills, Planing Mills, Furniture Factories, Piano Factories, Carriage Factories, etc., etc.**

We have been manufacturing for the Canadian trade since 1855, and have maintained the same high standard of excellence. Let us know your saw requirements.

## A NEW BELT SANDER

Of The Well Known Hand Block Type



Mattison No. 131

Here you have a Belt Sander that is built along practical lines. It is strong and substantial in construction, the adjustments are all simple and convenient, the workmanship is accurate and strictly high grade throughout—an honest machine built to produce perfect work and give continuous service.

The variety of work handled by this machine to profitable advantage is so unlimited that practically every furniture factory, cabinet shop and planing mill is needlessly wasting time and money by not having one installed.

Let us send you our large and descriptive circular and tell you in detail what this machine will do for you.

C. MATTISON MACHINE WORKS

883 Fifth t., Beloit, Wis.

## "Pioneer" Moulding Sander
## Power Veneer Presses

Cabinet Clamp

Veneer Press

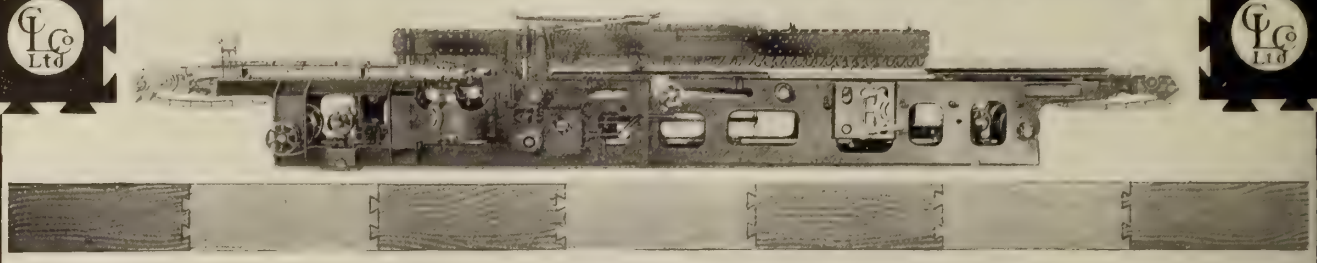
Write for Catalogue and Prices

Chain Clamp

**Black Bros. Machinery Co.**

Mendota, Ill.

Column Clamp



# Over $13,000.00

spent during the past seven months by the KNECHTEL FURNITURE CO., LTD., for Linderman Automatic Dovetail Glue Jointing machines in their Hanover, Walkerton and Southampton factories and in the near future, they will spend approximately $9,000.00 more to like-wise equip their other two factories.

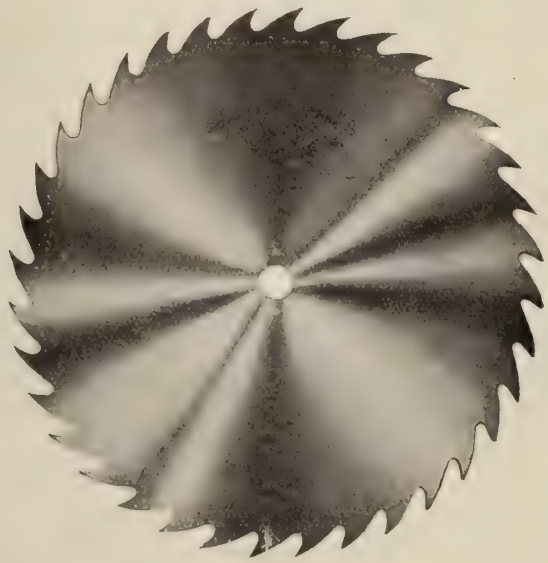
Many, unacquainted with the benefits derived from a Linderman machine, may not understand or appreciate such an expenditure but after eight months thoroughly testing out the machine the Knechtel Furniture Co. were convinced of the wisdom of this step as they realized not only the economic benefits derived, but also the advantage of having all their product built up with a permanent, reliable, Dovetail joint, which eliminates entirely all danger of open joints, the nightmare of all furniture manufacturers as well as of Furniture Dealers.

**Economy in production and increased quality of product warranted such an expenditure by one of the largest and most progressive of Canadian Manufacturers.**

## Canadian Linderman Co., Limited

Works at MUSKEGON, MICH., WOODSTOCK, ONT.

# When the Circular Saws in your Planing Mill are



# Simonds Saws

**AND BEAR THIS TRADE MARK**

SIMONDS CANADA SAW COMPANY LTD
VANCOUVER B.C — TRADE MARK — Simond Steel REGD — ST JOHN N.B
UNEQUALED IN QUALITY AND UNIFORMITY
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The Guarantee of Quality made by our Company protects you and assures you a product that is the Height of the Saw Making Art.

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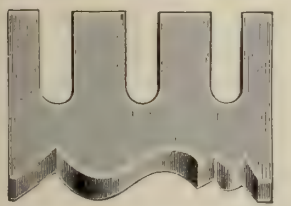

Are made in all styles and any desired size. Welded, Balanced, and Finished with the greatest care. Orders promptly filled. Standard sizes carried in stock.

**Factory in Montreal**

## Simonds Canada Saw Co.

**Montreal, Que** **Limited**

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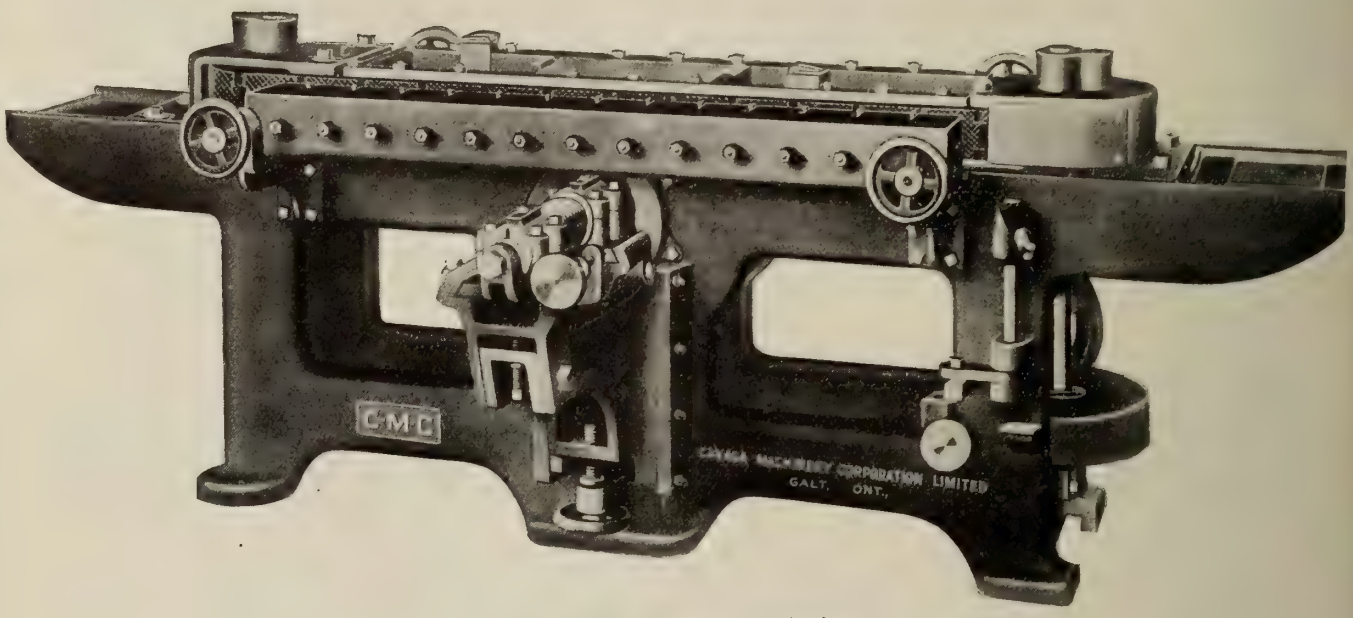


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A continuous feed glue jointer, having a wide range of work and embodying the latest and best features of design to be found in any machine of its kind.

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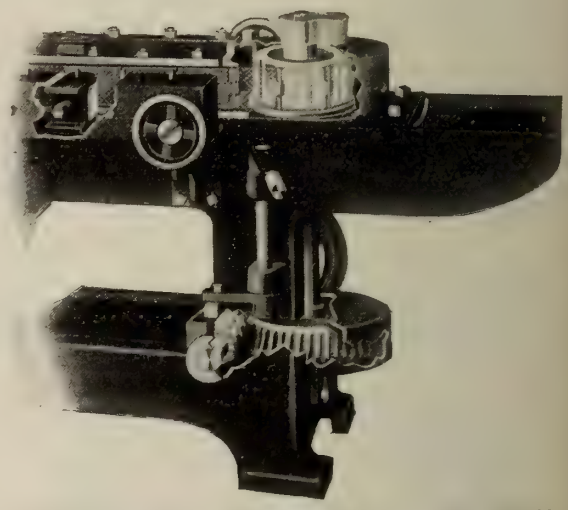

**Note this Self Oiling Drive with Ball Bearing Bronze Worm**

*Bulletins and Prices on Application*

## Canada Machinery Corporation

GALT, ONTARIO Limited

# Canadian Woodworker

**Canada's Only Woodworking Paper**

Published in the interests of Planing Mills, Saw Mills, Furniture and Piano Factories, Implement and Carriage Works, Boxmakers and Coopers, Carpenters and Builders.

The Circulation extends from the Atlantic to the Pacific and covers thoroughly all classes of Woodworkers in this immense territory.

**Wooodworker Publishing Co., Limited**

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Phone Main 5048
**111 Mail Building, Toronto, Canada**
United States: E. J. MACINTYRE, 4057 Perry St., Chicago.

SUBSCRIPTION RATE.

Canada, United States, $1.00; Great Britain, Australia 4s 6d.; other countries $1.50 per year. Advertising rates on request.

**Vol. 12** **July, 1912** **No. 1**


## Lumber Waste that Made Profits

A broom handle company was organized at one city to use up the odds and ends of maple and beech. The second month the company used 241,000 feet of lumber, which had formerly gone into fire wood. This waste was in the form of pieces known as "squares" 12, 18, 29, 30 and 36 inches long and 1⅛ in. x 1⅛ in. wide and thick. Some years $2,000 is saved on this by-product. The manufacture of a veneered table leg —the center of two short pieces of mature and imperfect chestnut, glued together and veneered with oak—brought a big return on the investment made by the inventor of the idea.

Several hundred men are employed in a plant making children's go-carts, baby buggies, and the like—all simply because the superintendent made good when people thought him a crank on the subject of waste utilization. On a certain doll cart, for instance, the lumber cost is forty per cent. less by using short stuff. The additional cost of handling reduces the saving to twenty-five per cent. This factory is now turning out five hundred of this particular kind of cart every day, all made from the scrap heap.

"The use of a little gray matter in sizing up the waste heap means the utilization of a lot of it at a profit," said one superintendent. "These concerns that tell you that they cannot handle waste at a profit have no system about it. They toss everything into one pile and then declare they cannot sort it. Why don't they have some method of sorting it when it is cut, just as they sort their own stock? I have different bins at the saw, and train the sawyers to cut the waste for particular purposes in the same manner that good waste is cut. The pile of one kind, nicely sorted, will invariably suggest some idea to my mind of getting rid of it to greatest advantage."

One industry has a chemical plant allied to its very large mills. It has found the wood full of chemical possibilities. All non-merchantable wood products are conveyed into the second plant, where they are turned into three very valuable products—charcoal, acetate of lime and wood alcohol. The saw mills now supply all the fuel, four or five carloads a day, each holding eighteen or nineteen cords. This was formerly left to rot in the forest.

For many years, a plant, which had begun early in lumber, sawed pine. When pine became scarce it turned to hardwood. The great waste, both at the woods and at the mill, impressed the owners so much that they began studying ways of getting rid of it. One possibility that occurred to them was the manufacture of charcoal for making iron, and the extraction of the by-products of maple, birch, beach and other woods. At that time, this industry was being carried on extensively in a neighboring state with natural gas as fuel. There was no natural gas at this plant, but the manager asked: "Why not use the sawdust and other small waste from our sawmills as fuel for converting this by-product of the forest into additional products?" "You can't do it," was the verdict he got from men in the industry. "You can't get heat enough from sawmill refuse to make charcoal."

But the manager was not convinced. He experimented in a small way, burning the refuse under temporary charcoal ovens. No one had ever done it before, but he succeeded. In 1911, the industry was begun on a commercial basis, and has expanded ever since. For seven years it has been doing what everybody believed was impossible previous to 1901.

But the charcoal ovens were only the first step; next came the chemical plant. To make charcoal, the wood is put in air-tight receptacles and subjected to intense heat from the outside. As it is burned without air, it chars instead of being consumed. During this operation it gives off gases that are captured and condensed. From these are secured wood alcohol and acetate of lime, and a partial product known as acetone liquor. So here was a great triumph in economy on the part of the company. An apparently worthless waste of the forest had been turned into charcoal, wood alcohol and acetate of lime; the only fuel used in the process was the waste from the saw mills.

Now came another step in utilization. It was figured out that more profit could be made by utilizing the charcoal at home than by shipping it. Therefore, an iron company was organized to manufacture charcoal pig iron. This plant has a capacity of one hundred tons of pig iron per day, made from ore, shipped by boat from the mines to the nearest available railroad point, and thence by cars to the city where the sawmill is located.

Many sawmills could get an object lesson in economy from the operation in which the charcoal wood is separated from the lumber materials. A log, for example, is run up the incline. It is crooked in part, say, and in ordinary operations would be condemned at the start. But here it is deftly passed among the saws, and in a minute is separated into lumber and bolts for charcoal. At the original plant ninety-six cords of four-foot wood are converted into charcoal every twenty-four hours. The industry evidently pays, for not only has it continued, but two other duplicate plants have been established. The company uses seven or eight carloads of charcoal a day in making pig iron.

At one mill, the manager said that his company had found it possible to utilize a great quantity of the old-time waste. "Ten years ago," he remarked, "we sold our waste pieces at $1.25 a load, containing about eight hundred board feet of lumber. To-day we would be glad to pay from eight to ten dollars a load for this very waste could we buy it back."

Here are some of the by-products of the company that formerly went to waste: white pine match block, sold to a match company; pine edgings made into spindles for outside decorations; ballisters one and three-eights inches square and twenty to twenty-four

inches long; colonial columns, staved together, of long narrow pieces; blind slats, of very small pieces; corner blocks for interior finish, three and three-quarter inches square up to five by five inches; strips sold to a factory in the east for use on checker-boards; turned rosettes one to three inches in diameter, made of one-half inch cuttings; wood carvings for doors; wreaths, two inches to one foot square, pine or hard woods, not over one-half inch thick; flush molding strips.

## Uses for Sawdust

The Canadian lumbermen, who for years wasted the sawdust which fell from the mills, poisoned the rivers, caused enormous loss in the production of fish and injured the public health, may now look back with chagrin and wonder over the fact that to-day flour for trade purposes from sawdust is now in common use. It is an ingredient of dynamite, linoleum, xyolite, etc. The wood flour is ground in a mill, very similar to those which grind corn and rye. Pine and spruce sawdust is used and after passing through the stones and the bolting chest, it is sacked or baled for shipment. It is then worth 48s. to 52s. a ton. The flour has a number of uses. It is the absorbent for nitro-glycerine, which is the explosive ingredient. Wood flour dynamite is inferior to that made with infusorial earth as the absorbent; but it serves many purposes and is cheaper. But dynamite is one of the smallest prospective uses for the product. Linoleum makers mix it with linseed oil and give body to their floor coverings. It is not considered quite equal to ground cork for this purpose, as it is less elastic, but it is cheaper and meets requirements for medium grades. The flour fills an important place in the manufacture of xyolite, a kind of artificial flooring, resembling wood in weight, and stone in other respects. It is used for kitchen floors, and in halls, corridors, cafes, restaurants, and public rooms. It is impervious to water, and is practically fireproof. It is floor material in some of the German war vessels. It is so used because it is not liable to take fire or splinter if struck by shells.—(Canadian Trade Review).

## Labor Organization in Canada

The Department of Labor at Ottawa has prepared a report on labor organization in Canada that presents for the first time in a complete form the details of trade union development in the Dominion. Mr. F. A. Acland, Deputy Minister of Labor, in the introduction to the report says: "It is not intended that this record should be considered as in any way either an advocacy or a condemnation of labor organization. An effort is made simply to state freely and clearly the facts gathered and thus show as precisely as the limits of an official publication will permit the general situation in Canada to-day."

There were 1,741 local trade unions in Canada at the close of 1911, the oldest being the Toronto Typographical Union, established in 1844. The membership of some unions is as low as ten, while in one case a local union has 1,150 members. Ontario, as is natural because of its pre-eminence in manufacturing, has the largest number of unions, 706. British Columbia, the industrial population of which is recruited mainly from Britain and the Pacific States, where unionism is very aggressive, comes next, with 234 unions. Quebec is third, with 205. The figures for the other provinces are: Alberta 153, Nova Scotia 138, Manitoba 118, Saskatchewan 84, New Brunswick 73, Prince Edward Island 7.

A fifth of the unions are located in the four largest cities of the country. Toronto has 105, Montreal 95, Winnipeg 79, and Vancouver 76. The figures for some of the other important industrial centres are: Hamilton 48, Ottawa 47, Quebec 42, St. Thomas 28, Fort William 28, Lethbridge 28, Port Arthur 27, Halifax 22, Moose Jaw 21, Saskatoon 21, St. John 20. The Western cities, speaking generally, have far outstripped the East in labor organization.

The report in very thouough fashion traces the affiliations of the local unions to national and international organizations. There are 144 international bodies represented in Canada, of which all except two have their headquarters in the United States. The two exceptions have headquarters in Great Britain. They are the Amalgamated Society of Carpenters, with 3,561 members in 43 Canadian lodges, and the Amalgamated Society of Engineers, with thirteen branches in Canade and 752 members. The facts brought out by the recent report indicate that in the matter of labor organization there is practicallv no boundary line between Canada and the United States.

Canadian industry is less highly unionized than that of many European countries. The total membership of unions is 133,132, or 2 per cent. of the population. In the United States 3 per cent. of the population are members of trades unions, in Great Britain 5.4, in Germany 4.1, in France 2.5, and in Austria 1.4.

The report deals with the benefit features of unionism, but data are not available on which to speak conclusively as to this feature of the working of international organizations with branches in Canada. The department promises closer investigation and fuller discussion. Such further inquiries as may be made will be of great value to the labor interests of Canada, for there is from time to time an uneasy feeling on this side of the border that Canada puts into the coffers of the various international unions far more than Canadian workmen have returned to them.

## Waiting for Opportunity

The man who waits for opportunity to come knocking at his door will wake up some morning to discover that he has made nothing of himself and that he has outlived his usefulness and grown grey doing it, says a writer in Contract Record.

The man who wants success in any line to-day is the one who rolls up his sleeves, starts out with a club, a gun, a steel trap, or what is most likely to catch the game, and himself lays in wait for opportunity. He will be following opportunity every minute he has. He will be striving and working, pushing and hustling. Sometimes he may lose sight of the game, but he will keep on and on.

When a man goes hunting in the woods he tramps where game ought to be until he finds tracks. Then he follows the tracks. Maybe he gets a glimpse at the game occasionally, but he keeps on and on. Probably not more than once or twice in a while will he see what he seeks, but finally he comes upon it in the open, and it is his. Just so with opportunity. Search for it!

The more carefully your lumber stock is sorted and piled when it is being received on the yard, the less trouble you will have in finding what you want when you need it, and the easier and happier will be the life of the stock sawyer.

## Pessimistic or Otherwise?

Toronto, June 27, 1912

Editor Canadian Woodworker:

Dear Sir,—Reading in your issue of May the article "Shortage of Help" and giving the boy a chance, The boy is hardly to be found in the woodworking factory to-day, and the question arises why it is, because his father is a hard working good mechanic and only makes a living the boy of to-day looks ahead and sees nothing in becoming a good mechanic from a mechanical point of view. The boy of to-day is not the boy of fifty years ago, hence the shortage of help, and 10 years hence it will be worse than to-day. We are feeling the want of first-class mechanics to-day, and the reason is the boys will not learn the wood-working trade, there is not enough money in it fom them, we have lots of 2 x 4 men looking for work, I have had men come to me for work and called themselves carpenters I found that they were no good, I have had to dismiss them before one days' work was in, look at a school teacher what she or he earns, look at a policeman, or a common Hod carrier, the man that nails the lathes on, gets more than the skilled mechanic, and so if one looks into all kinds of employment the poor mechanic is the worst paid of all.

Wm. Roberts.

## The Day of Handy Men

The Toronto News, commenting on the tendencies of education, remarks:

"We need more manual training and more technical education in our schools. In the second place, employers should facilitate the attendance of their younger employees at technical schools, where they could learn a trade. It is in the interest of the state as well as the boy that this question should be faced and effectively dealt with."

It is regretted that the employers are not generally concerned as much as they might be about the technical success of their employees. Talk of giving them trades. The skilled workmen are becoming scarce. In later days he represents the handy man who, without much training, and in the exercise of his genius, can make anything. He would make it better, perhaps, if in his youth he had been doing the work under the direction of a master hand.

With the abolition of the apprentice system came the factory system. It has its divisions of labor, one depending upon the other, and all developing a class of workmen that cannot find profitable service outside of its chosen sphere.

The employers are looking for the help that produces a certain article or kind of goods quickly. They have not the same, and some have not the inclination, to develop artizans. They pay better wages for classified service. The youth makes more, but he is limited in his usefulness. Eventually he does not learn a trade. He does not become an expert.

Nor will the technical school fill the bill. It will theoretically assist the student, but he must have the change of work and practice in order to become the skilled mechanic. Labor is being more and more represented by handy men.

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## Checking Late Arrivals

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The foreman was credited with getting to work on time, the man was locked outside to wait until the gate would be opened again, two and a half hours later. The workman and the company lost this one-fourth of a day through the former showing proper respect to his boss. Instructions could not be disobeyed by the gatekeeper. This was an old-fashioned method, successful fifty years ago. The gate was always shut at the exact time and employees who came later must wait until the middle of the forenoon for admittance.

Employees in another factory were required to sign their names at a clock and, in addition, fill out a slip to be O.K.'d by their foreman. Should a man neglect either, he had to make immediate explanation or be docked in pay for all labor not double checked. Men lost time in registering and got into the habit of jotting down initials or syllables of their names, which are unreliable means of identification for the clerk. Besides, the clock was placed in the corner so that employees found it unhandy to reach at all. One left-handed employee, for instance, found it impossible to leave more than an unintelligible scratch on record, because he was used to writing with his left hand and needed this now to hold down a lever on the left side while registering.

These are the sources of waste which many manufacturers overlook. In trying to force an employee into compliance with rigid systems of discipline, the efficiency of both employees and employers is decreased. Discipline cannot be brought about by forced measures. Neither is it effected by any complicated system.

The superintendent of a rubber factory once faced the problem of dealing with lates. Various plans had been tried upon the employees, but they were not lasting remedies. Small fines were imposed, they were docked for time lost and they were reprimanded by the general manager. No two individuals accepted these measures in the same spirit.

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The habitual late was usually found to be the poorest worker. On the other hand, the man who prided himself on good work was willing to spend extra time in doing a job well. And he would begin in time so that be could do the job as well as possible.

# The Best Way of Doing Things

By James MacGregor

Probably in no other manufacturing industry will be found so many different ways of doing the same thing as are in vogue in wood-working establishments. In factories turning out the same kind of goods various methods are employed to accomplish the same end, each factory doing the work in its own way, according to some more or less crude system of procedure usually developed by the most competent person around the plant.

Although the object in view in all cases is to get the work done as quickly and cheaply as possible, in many instances the prevailing system, or lack of system, produces the opposite results, and according to the latest ideas of factory management, about which we hear so much, few, except the more modern plants, should be allowed to exist. While this may be theoretically true, it is also unquestionably true that many factories are adopting methods of doing certain kinds of work that could scarcely be improved upon, and in nearly all plants are to be found numerous excellent devices to reduce cost; that is, doing the work in the most advantageous manner.

Many valuable suggestions on this subject have appeared from time to time in The Wood-Worker, yet probably some of the best ways of doing things are not known outside of the factory where they originated. If some comprehensive system could be devised embracing all the best elements in the different factories, it might then be possible to adopt some uniform scheme of the best ways of doing things in every factory, but as improvements in machinery and changes in the design of the things manufactured occur from year to year, the best way of doing things at a given time must of necessity be subject to change to other and still better ways at some future time. Hence it would be impossible to lay down on paper any hard and fast rule for the carrying on of any system of operations that would be best under all conditions, so that, in the long run, it will be up to each factory to work out its own salvation, to formulate its own plans for doing its work—a question of organization and management.

Good management in the factory is no different from good management everywhere, and simply means the best way of doing things. The best way to do things in the wood-working plant implies the best possible arrangement of buildings, equipped with the latest and best tools, the simplest and most economical methods of handling labor and materials, so that the various operations may be readily performed with the least loss of time, in the best manner, and in their proper sequence.

To formulate a system of the very best ways of performing every operation in the factory, from the raw material to the finished product, to provide the correct tools and equipment, to supervise all the various processes, plan the work ahead so that there may be no waiting between jobs and no wasted time, to foresee difficulties and overcome them, requires the highest degree of ingenuity and skill, and more time, study and hard work on the part of the management than is usually devoted to it by the official manager. However, with the co-operation of the persons most interested, and the best and most intelligent men around the plant, some such system seems possible; but knowing the best way to do things, and having them done that way, are two different problems. To put such a system into continuous daily operation is no simple task, especially in the older plants where the habit of doing things a certain way is usually deep-seated.

It seems strange that although good management in household affairs, which means that the household duties shall be performed in a regular, orderly and economical manner, with the least amount of waste, both of physical energy and the household funds, has been in all ages held up as one of the supreme virtues, when a similar policy is attempted in the factory it is usually resented by the men as a scheme to force them into doing more work without additional compensation, and any system of checking up on their work is regarded with suspicion, and to overcome this prejudice requires unusual tact and intelligence; a tyrannical or overbearing attitude only aggravates the case.

It is obvious, then, that a course of procedure which attempts to compel men to work beyond their power, or puts any undue strain on any part of the system, is not the best way to do things; on the contrary, the essence of all improved methods is to lighten the burden of the worker. If it can be demonstrated to a man that he can perform his duty better, or do more work with less energy by following some well-arranged plan which does not compel him to work harder than before, but makes his work easier, it will appeal to his natural self-interest and tend to remove whatever prejudice he may have entertained toward the innovation.

Generally speaking, men will perform their duties better when owners, managers and those in authority display a keener interest in the way the work is being carried on; when buildings are clean, well lighted and properly arranged; when the stock comes to them in systematic rotation. More can be accomplished with less physical exertion when time-waiting is eliminated and a clean-cut daily task is set before them, than if they are compelled to chase from one end of the shop to the other in search of tools, material or information. As a rule, they will willingly perform agreeable duties, and accomplish more real work when it is divested of all awkward and meaningless movements, and the shortest cut to complete the operation is made easy instead of difficult.

In other words, to get men into the habit of doing things the best way, is to provide the best means of doing it, supplemented by some form of recognition of work well done.

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One can tell by seeing a new man handle a hammer whether or not he has had much experience in handling that tool. If not, he will catch the handle close up to the hammer, peck away at the speed of a trip-hammer and hardly move the nail at all unless it is to bend it. But if he "knows how" he will catch hold at the end of the handle and make long, even strokes, thus bringing into play the added leverage of the handle and muscle combined, and the nail can be seen to sink steadily at every stroke.

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Although the object in view in all cases is to get the work done as quickly and cheaply as possible, in many instances the prevailing system, or lack of system, produces the opposite results, and according to the latest ideas of factory management, about which we hear so much, few, except the more modern plants, should be allowed to exist. While this may be theoretically true, it is also unquestionably true that many factories are adopting methods of doing certain kinds of work that could scarcely be improved upon, and in nearly all plants are to be found numerous excellent devices to reduce cost; that is, doing the work in the most advantageous manner.

Many valuable suggestions on this subject have appeared from time to time in The Wood-Worker, yet probably some of the best ways of doing things are not known outside of the factory where they originated. If some comprehensive system could be devised embracing all the best elements in the different factories, it might then be possible to adopt some uniform scheme of the best ways of doing things in every factory, but as improvements in machinery and changes in the design of the things manufactured occur from year to year, the best way of doing things at a given time must of necessity be subject to change to other and still better ways at some future time. Hence it would be impossible to lay down on paper any hard and fast rule for the carrying on of any system of operations that would be best under all conditions, so that, in the long run, it will be up to each factory to work out its own salvation, to formulate its own plans for doing its work—a question of organization and management.

Good management in the factory is no different from good management everywhere, and simply means the best way of doing things. The best way to do things in the wood-working plant implies the best possible arrangement of buildings, equipped with the latest and best tools, the simplest and most economical methods of handling labor and materials, so that the various operations may be readily performed with the least loss of time, in the best manner, and in their proper sequence.

To formulate a system of the very best ways of performing every operation in the factory, from the raw material to the finished product, to provide the correct tools and equipment, to supervise all the various processes, plan the work ahead so that there may be no waiting between jobs and no wasted time, to foresee difficulties and overcome them, requires the highest degree of ingenuity and skill, and more time, study and hard work on the part of the management than is usually devoted to it by the official manager. However, with the co-operation of the persons most interested, and the best and most intelligent men around the plant, some such system seems possible; but knowing the best way to do things, and having them done that way, are two different problems. To put such a system into continuous daily operation is no simple task, especially in the older plants where the habit of doing things a certain way is usually deep-seated.

It seems strange that although good management in household affairs, which means that the household duties shall be performed in a regular, orderly and economical manner, with the least amount of waste, both of physical energy and the household funds, has been in all ages held up as one of the supreme virtues, when a similar policy is attempted in the factory it is usually resented by the men as a scheme to force them into doing more work without additional compensation, and any system of checking up on their work is regarded with suspicion, and to overcome this prejudice requires unusual tact and intelligence; a tyrannical or overbearing attitude only aggravates the case.

It is obvious, then, that a course of procedure which attempts to compel men to work beyond their power, or puts any undue strain on any part of the system, is not the best way to do things; on the contrary, the essence of all improved methods is to lighten the burden of the worker. If it can be demonstrated to a man that he can perform his duty better, or do more work with less energy by following some well-arranged plan which does not compel him to work harder than before, but makes his work easier, it will appeal to his natural self-interest and tend to remove whatever prejudice he may have entertained toward the innovation.

Generally speaking, men will perform their duties better when owners, managers and those in authority display a keener interest in the way the work is being carried on; when buildings are clean, well lighted and properly arranged; when the stock comes to them in systematic rotation. More can be accomplished with less physical exertion when time-waiting is eliminated and a clean-cut daily task is set before them, than if they are compelled to chase from one end of the shop to the other in search of tools, material or information. As a rule, they will willingly perform agreeable duties, and accomplish more real work when it is divested of all awkward and meaningless movements, and the shortest cut to complete the operation is made easy instead of difficult.

In other words, to get men into the habit of doing things the best way, is to provide the best means of doing it, supplemented by some form of recognition of work well done.

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One can tell by seeing a new man handle a hammer whether or not he has had much experience in handling that tool. If not, he will catch the handle close up to the hammer, peck away at the speed of a trip-hammer and hardly move the nail at all unless it is to bend it. But if he "knows how" he will catch hold at the end of the handle and make long, even strokes, thus bringing into play the added leverage of the handle and muscle combined, and the nail can be seen to sink steadily at every stroke.

# Forest Industries and Timber Resources

### Forest Industries

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Charcoal-making enlists not a little capital and a great many workers. The manufacture of wood alcohol and other products of dry distillation is an ever-increasing business. In the pine regions of the south the ancient industry of making pitch still flourishes, as does the manufacture of turpentine, chiefly produced from the long-leaved pine.

An industry of the forest that from the very first disclosed astonishing possibilities is that of the production of wood pulp for paper. Twenty-five years ago this business was in its infancy, but to-day it produces goods of the value of millions and millions annually.

Another important forest industry is the manufacture of excelsior, that unique utilization of forest products. In addition to the narrow strips of shavings with which everybody is familiar, the making of boxes of all kinds has opened up a market for many kinds of wood, such as poplar, which not so very long ago were looked upon as almost worthless.

One of the most interesting of the forest industries is the preparation of bark for tanning purposes. In this, hemlock plays the leading role. This industry exhibits a remarkable instance of the part played by America's forests in the world's commerce. One of the centres of bark production is Northern Wisconsin. Within the past ten years large tanneries have been set up in the very heart of these forests and raw hides brought thither from far-away Argentina to be treated with the bark of the Wisconsin trees.

To summarize the remainder of the long list of these industries, mention must be made of the production of fencing material of all kinds, telegraph-poles, long logs for piles for the foundations of buildings, railway ties, etc. It is a noteworthy fact that these and various other products of the wood have this peculiarity: that even in this age of machinery they are chiefly supplied by the labor of men armed simply with axe and hand-saw. The most primitive of all forest industries still remains one of the most important—viz., the cutting of fire-wood. In one year alone the management of a big estate in North Carolina netted enough from the sale of fire-wood to pay the considerable expense of managing that property, according to the most approved methods.

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### Co-operative Forest Fire Protection

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There are now at work in this particular section of the country some forty small mills, cutting from 100,000 to a 1,000,000 feet a year, giving employment to a large number of men, and also, which is better, giving settlers a chance to market the timber which they take from their land instead of burning it as in the past.

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To the west, rather southwest of the Thunder Bay district, the bush men have again played havoc. The tale as regards white and red pine is different. In the district between Fort William and Fort Frances there are over two billion feet of red and white pine tributary to the Fort Frances and Rainy River mills, and probably more jack pine. Along the Rainy River an immense amount of cedar and ties has been taken out and shipped west to the prairies and, although the shipments have been heavy, as railroad facilities open up the back country, this trade will continue, as will the shipments of spruce to the paper and pulp mills erected on the waterpowers of the Rainy River. Along the Canadian Northern Railway, going west from Lake Superior, with few exceptions, the country has had a bad experience until after leaving Atikokan, when the country assumes a natural wooded appearance, with the usual timbers, pine, spruce, jack pine, with several large lumbering industries distributed along the line.

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### Making Clothes From Wood

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### The Best Woods for the Carver's Use

One of the first questions is what wood shall we use in carving. In the first place, all woods for carving should be close-grained, well-seasoned, and with as little figure as possible.

"Figure" is the technical name for the dark, wavy lines that may be seen on the surface of olive-wood, maple, bird's-eye maple, and some kinds of Italian walnut. In oak it is much more marked and is called the "silver grain," but for carving the less of this the better.

Oak is the most popular wood used by the carver, and from its durability, and the beautiful color it gets by age, is likely to retain its popularity.

### English, Austrian and American Oak

There are several kinds of oak, the best being the English oak, and next to this the American oak. American oak is coarser, and not fit for good work. Wainscot oak should be avoided by the carver, as it has too much figure and is very hard.

Chestnut closely resembles oak without the "silver grain." It is not so tough and is very unequal, but when good it has much to recommend it. It is more likely to get worm-eaten than oak.

In walnut the American is on the whole the best, if carefully chosen with a close, even grain and not too much figure. English walnut is tougher and not easy to get; when good it is quite suitable for carving.

Italian walnut is an excellent wood, closer-grained and harder than the American or the English walnut, and, though not so dark, is a beautiful bronze color and cuts well. It should be selected free from black streaks, but is not now easily procured.

Satin-walnut is an inferior wood and not so expensive. It is lighter in color than the others, but is very uncertain in the way it cuts.

Mahogany is good for carving, especially for work that has to be decorated.

Rosewood and ebony are difficult to carve, being so hard and gritty that they turn the edges of the tools. Carvers should avoid using them if possible, but when necessity compels it the design should be considered with special regard to the material.

It is surprising that teak is not more used for carving. There are several kinds, and some are very hard, but that which is imported from Burma is said to be the best. It is durable and not easily affected by damp. It cuts well and is a nice color, and for this reason is most suitable for the paneling of rooms, doors, chests, etc. It is quite the best wood to use for any carved monument to be placed out of doors. Oak, with all its advantages, is too light in color when new, and although it can be fumigated, this adds to the expense, and the wood loses some of its vigor in the process. Teak requires to be selected, as some of the planks have numerous black streaks which spoil the effect of the carving as well as the color. At the present time the right kind of teak for carving is not very plentiful.

### Australian Jarrah-wood

The Australian jarrah-wood is a beautiful red, a little coarse in the grain, and though hard cuts fairly well, but the tools must not be too thin.

Boxwood, pearwood, sandalwood and satinwood are best suited to figures and fine, delicate work; boxwood is, however, very hard and very scarce.

Lime and holly are soft and even in the grain, but being light in color they require staining or gilding.

American basswood is a fairly good wood, but variable, and sometimes gritty. It is cheaper than lime, not nearly so nice to carve, and can rarely be used for fine work.

Sycamore is a white wood, and is suitable for bread platters, bowls and butter trays. It is tough and rather difficult to cut, as it contains a slight amount of sand, which is apt to blunt the tools.

Lime is the best wood for chip carving. Holly and sycamore are also suitable but harder, and consequently are more difficult to cut.

Several kinds of pine are good for carving, but deal should be avoided. Pitch pine is excellent for work exposed to the weather, but disagreeable to carve, from being very sticky. The student can not do better than to begin his studies with yellow pine, but must be careful to get only the best quality, there being cheaper varieties which are quite unsuitable. Carpenters rarely keep the best. Yellow pine needs careful working; it is soft, easily splits and requires very sharp tools to make clean cuts. This makes it most excellent practice, for when once the student has mastered these difficulties he will find that he can model with infinitely greater freedom than if he had confined himself to the far less plastic hardwoods.

Kauri pine does not cut quite so well as the yellow pine, but being tougher does not indent so easily. It can be stained readily, and has many points to recommend it.

### The Cabinetmaker and the Carpenter

A carpenter or joiner usually calls wood "stuff," and the dimensions are taken before the wood is planed. What is called 1-inch stuff would when planed be rather less than the inch. The ordinary wood for cabinet work is sold in planks or boards by the merchant. A plank is from 2 to 4 inches thick and a board is anything under 2 inches.

Yellow pine is only sold in planks. They are usually about 12 to 14 feet long by about 9 to 12 inches wide by 3 inches thick. This thickness can be reduced at the lumber yard, as required, by sawing the plank longitudinally.

For ordinary work it is a good plan to order one plank with "two cuts"; you will then get three boards each a little under the 1-inch thick, the sawcut slightly reducing the thickness of the wood.

When ordering a panel, the grain of the wood should run the long way, and the greatest measurement should be put first, thus: 14 inches by 6 inches by 1 inch, the last figure standing for the thickness of the wood.—T. A. Tefft.

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### Getting Foreman's Co-operation

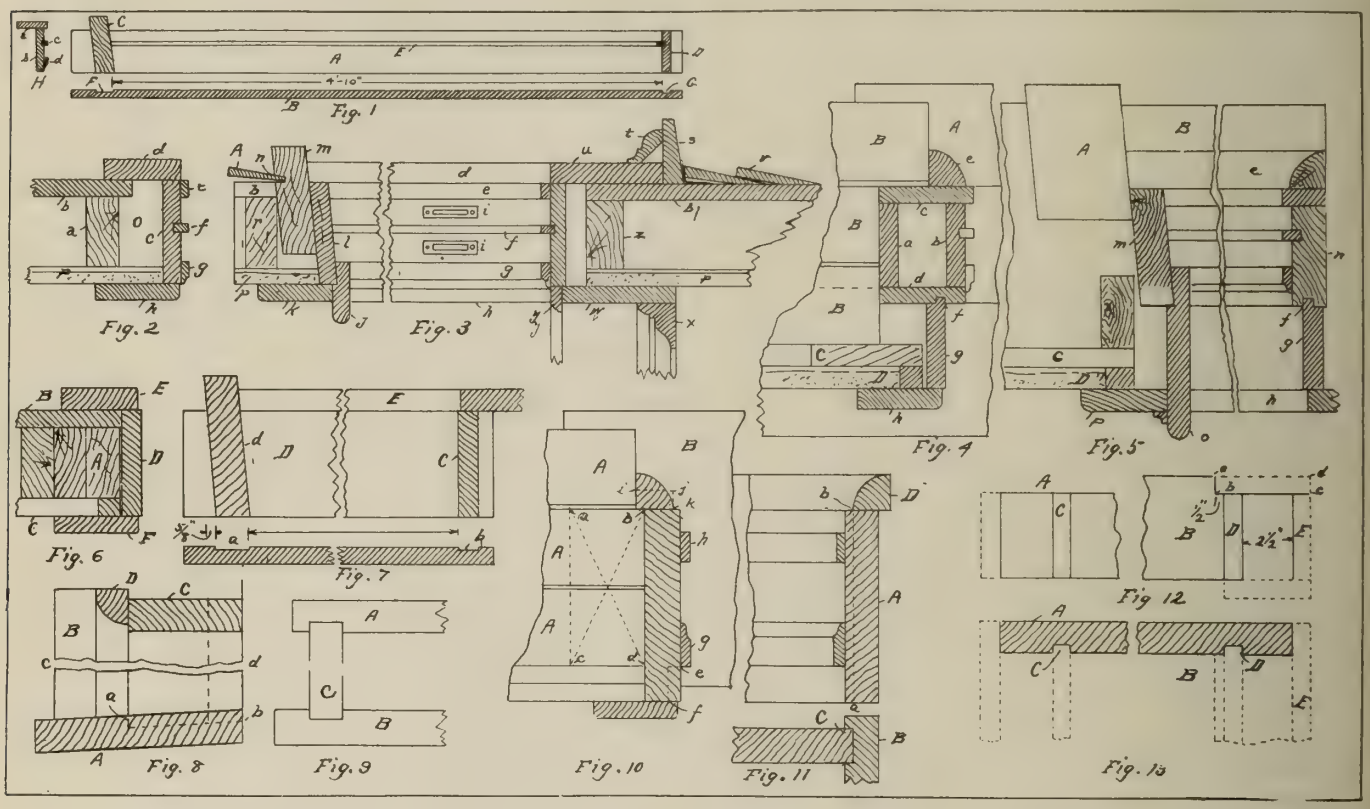
"You cannot make a clerk of a foreman," says the manufacturer when it is suggested that foremen be required to make out time slips, material requisitions and reports. While custom has almost established that saying as a truth, experience in installing systems in many factories leads to the belief that it is but partly true. System has become so necessary a part of shop practice that the intelligent foreman now expects to make some records. Not long ago I heard one foreman in a new plant say, "I've got to have some discharge slips; verbal orders don't go any more." And while there are exceptions, that expresses the attitude of the average shop foreman. Instill into him a sense of responsibility, keep the records down to a minimum and simple in form, and you will have his co-operation.

# The Carpenter and Builder

### Window Frames

Fig. 1 at A shows a Side Jam for a Common Window Frame without weights for a frame building. This kind of frame is not used very often, only in very cheap work. B shows the edge of the side jamb, F and G the notches cut in to receive the sill C and head jamb D. The sill C should have a slant of at least 3/8 of an inch. E shows a groove plowed in to receive the parting stop which divides the two sash. At H is shown a cross-stction showing the outside casing at a, the jamb at b and the parting stop at c. The space between the parting stop and the outside casing must be the same as the thickness of the sash, also the same distance from the parting stop to the inside stop d.

To Find the Length of the Side Jambs for a Double Hung or Two Light Window. Suppose the window to be 24 in. x 26 in., two lights, the first number always




represents the width of the glass, then the height would be two times 26 in. or 52 in. plus two inches for the top rail, one inch for the center or dividing rail and three inches for the bottom rail, making six inches in all. Add 6 inches to 52 inches making the height 58 inches or 4 ft. 10 in. in all; measure 4 ft. 10 in. from the top or head jamb, allow 3/8 in. for the slant of the sill C, making the inside measurement 3/8 in. less than 4 ft. 10 in. The grooves F and G should be the width of the timbers used for the head and sill and about ¼ in. or 3/8 in. deep. When cutting the head jamb or sill, take the width of the glass, 24 in., and add 4 in. for the sides of the sash and the distance that the head pamb and sill are let into the side jambs, which is 3/8 in. on each side, making 3/4 in. in all. 24 in. and 4¾ in., equals 28¾ in., the length of the head, jamb and sill. The outside casing as a projects over the jamb b ½ in. to form an outside stop for the sash.

Fig. 2 shows a cross section of Fig. 3, a shows the 2 in. x 4 in., b the outside sheathing, c the jamb or pulley stile, d the outside casing, e the outside window stops, f the parting stop, h the inside casing, P the inside plastered wall and O the weight pocket.

Fig. 3 shows a Vertical Section of a Window Frame for a frame building. d, e, f, g, h, j represent the same parts as in Fig. 2, K shows the apron under the window stool J, l the sill, m the subsill, n a groove cut into the subsill to receive the siding A, r shows a 2 in. x 4 in. header under the frame, s a cap over the outside head window casing, t a bed mould under the cap and u the outside head casing. At v is shown the siding over the window frame, w the inside head casing, x the cap over the inside casing, y shows a moulding under the head casing, z a 2-in. x 7-in. header over the frame, i shows the location of the axle pulleys which are generally from three to four inches down from the top of the frame.

Figs. 4 and 5 show Cross and Vertical Sections of a window frame for a 12 in. brick wall. A shows the stone sill, B the brick, C the furring, D the grounds to stop off the plastering. At a and b is shown the jambs, c the outside casing which also forms the outside window stop, d shows the inside casing to the frame with a groove plowed in at f to receive the sub-jamb g which is necessary, when 12 in. or heavier walls are used, to nail the inside casing h to. At e is shown a quarter round nailed on the outside of the frame and forms a brick mould, the header n is generally made of 2 in. lumber and the sill m of 1½-in.

or 2-in. lumber. The stool o must be wide enough to allow for the inside casing to rest on; P shows the apron. The stone sill A must be wide enough to project at least one inch on the outside of the brick and also be about two inches under the sill m.

Figs. 6 and 7 show a Door Frame for a Frame Building. A shows the studding, B the outside sheathing, C the inside sheathing or plastering, D the door jamb, E the outside casing, F the inside casing, a and b show the grooves cut into the side jamb to receive the head jamb C and sill d. The sill should have about 5/8 in. slant out, and should be wide enough to project an inch outside of the casing.

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Fig. 11 at A shows the head jamb of Fig. 10, at B a cross-section of the same showing the groove at C for the side jamb. The dotted line at a-b represents the depth that the groove is cut into the head jamb. You will notice that the quarter round D projects above the head jamb A; this is done by setting the quarter round or brick mould back ½ in. from the face edge of the jamb.

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The recently developed mania for bungalow building, which is so evident, for example, in the vicinity of Chicago, may be partly explained by the fact that an increasing majority of our metropolitan city dwellers live in "flats" until they are ready to build or buy homes for themselves and are so accustomed to the conveniences as well as the drawbacks of a one-floor habitation that they are loth to change. Then, too, the wife who does her own work with one or two small children to look after greatly appreciates the convenience of this way of living on the level, particularly if she be not strong.

Offsetting the convenience of bungalow living as well as the undeniable charm and "hominess" of a low roofed, spreading cottage as compared with the stilted, box-like proportions of the average little seven or eight-room cottage is the excessive space occupied by the building in proportion to the accommodation it affords, crowding the ordinary suburban lot or necessitating larger grounds, and the common objections to sleeping on the ground floor, particularly in a flat country having a normal rainfall. Although in the arid or semi-arid regions of the West this latter objection disappears.

Much of the charm of the California bungalow is due to its very low proportions. In the Northern bungalow cottage this charm is lost to a degree, owing to the necessity for a well lighted basement and the desirability of elevating the bedrooms well above the ground.

The small bungalow, like the small flat, is seldom well planned from an architect's standpoint. As a rule the relation of bedrooms and bathroom to the living room and dining room has all the informality found in a small seashore cottage. In a good plan the bedrooms and bathroom are always arranged on a little private hall or corridor, which may be completely isolated from the rest of the house. The same is true in the planning of flats and apartments, but is neglected in most speculative buildings of these types because flat dwellers have become accustomed to such really bad features as bedrooms and bathrooms opening off living rooms, dining rooms and kitchens, without other means of entrance or exit, and real estate dealers insist that prospective purchasers overlook these trifling drawbacks in view of the space which is saved thereby and thrown into bedrooms, closets, etc.

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Without any definite comparative data, however, it is doubtless safe to say that a thoroughly well built bungalow of from six to eight rooms will cost more than an equally good roomy house. The former, however, lends itself more readily to a comparatively rough and inexpensive treatment, particularly as to exterior covering, which may be of rough unstained boards, shiplap or shingles, or perhaps a good, heavy asphalt roofing felt with fine crushed quartz or gravel embedded in the surface, divided into vertical panels by rough, undressed boards, giving a sort of half timbered effect, the felt being afterward painted with one of the flat paints especially prepared for exterior stucco work.

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132 per cent. Decreases occur in the case of only two of the larger cities.

For a number of cities and towns from which returns have not been received, and where the permit system is not in force, it would be reasonable to add 15 per cent. to the total. This would give a half-yearly return of eight million dollars for the whole Dominion, which may be accepted as an accurate estimate.

Official Figures

| | 1 6 mos. 1912 | 1st. 6 mos. 1911 | App. Inc. p.c.for 6 mos. |
|---|---|---|---|
| Toronto | $13,195,271 | $11,930,953 | 11 |
| Winnipeg | 11,205,600 | 9,058,150 | 23* |
| Vancouver | 8,132,720 | 9,191,524 | 12* |
| Montreal | 8,132,720 | 7,306,136 | 11 |
| Edmonton | 7,725,622 | 1,620,431 | 376 |
| Saskatoon | 4,634,685 | 2,574,441 | 80 |
| Hamilton | 3,145,600 | 2,246,780 | 40 |
| Regina | 2,549,770 | 2,936,930 | 15 |
| Ottawa | 2,120,000 | 1,393,370 | 52 |
| Fort William | 1,743,425 | 750,075 | 132 |
| Maisonneuve | 817,428 | 748,900 | 90 |
| New Westminster | 785,578 | 613,580 | 28 |
| Lethbridge | 719,343 | 528,950 | 36 |
| Port Arthur | 700,994 | 312,985 | 124 |
| Brantford | 657,230 | 282,228 | 133 |
| London | 509,598 | 458,423 | 11 |
| Windsor | 433,830 | 396,795 | 9 |
| St. Boniface | 395,530 | 467,880 | 16* |
| Berlin | 332,950 | 242,585 | 37 |
| St. John | 315,950 | 211,700 | 49 |
| Sydney | 254,616 | 282,052 | 10* |
| Kingston | 224,059 | 133,223 | 68 |
| Galt | 204,032 | 163,920 | 25 |
| Nelson | 198,015 | 90,705 | 118 |
| Stratford | 202,791 | 53,590 | 278 |
| Peterboro | 188,858 | 186,786 | 1 |
| Welland | 124,186 | | |
| Totals | $69,583,674 | $54,192,092 | |

*Decrease.

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As Hyde glue that has been twice dissolved and again dried is capable of drying out more thoroughly and of showing better water-assimilating properties on redissolving, than glue obtained by a single drying, the relative amount of moisture already in the sample should be estimated. This moisture is best estimated by subjecting a gramme of the coarsely granulated sample on a weighted watch glass to a temperature of 220 deg. Fahr for one hour, weighing again, and computing the loss. Since the size of the granules makes considerable difference, care must be used always to have the granules of different samples about the same size.

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# Woodworking Machinery and Practice

### Knechtel Furniture Co. and Progress

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The investigation unfolded savings in two directions, the first being the actual traceable results in employing less men in making the glue joints than formerly, and making a reduction in the consumption of glue.

The second saving is the unfigurable but yet noticeable as shown by the quick moving of stock from the ripping department into the finishing department without the annoying delay as most manufacturers experience in getting the material from the glue room.

The saving in labor is noticeable in many departments. The first appears in the ripping department. Here the lumber is broken out and the defects are ripped out but practically little attention is paid to any unevenness in the edges of the material or the sizing up of the different panels into which the material is to be made, requiring less operators, whereas by the old method not only were the defects removed and the edges straightened, but each panel or top was figured out by the operator necessitating a considerable loss of time which is not appreciated because it seems unavoidable. From the rippers, the stock immediately goes to the Linderman machine. As each piece is placed against the gauge the operator instantly sets the fence so as to take off just a sufficient quantity of lumber that is necessary to clean up the stock and insure a perfect joint. When the panel or top is built up to several inches wider than is required for the finished panel, the piece is passed through the sizing saw placed conveniently to the centre operator and ripped to the exact size allowing only one-eighth of an inch for the finishing cut on the hand jointer or shaper as required. This operation as will be readily seen, does away entirely with the men employed to match the panels to the finished size and also saves the edging waste that of necessity is caused by the old method. This waste will vary from 1/8 in. up to 1 in. or 1¼ in., all depending on the amount of lumber that the ripping department has allowed for the joints and for the final sizing up. While the saving effected by this method, in lumber, may be small, yet, many manufacturers believe that it is equivalent to from two to five per cent. of the total output. As the glue jointing is done on the Linderman machine, it does away entirely with all men in the glue room, except one for doing miscellaneous odd jobs, and at the same time at the end of each day's run, practically all of the stock broken out by the rippers has been joined up into panels and is ready to move on through the machine shop doing away with all congestion which is now so common in most woodworking plants in not only the cutting up but also in the glue room. The saving is placed even farther than this because experience has shown that the stock when reaching the finishing department moves through it more quickly owing to the perfect joints and to the elimination of time expended in doctoring any defects which all know involves considerable loss of time.

All manufacturers appreciate the relief they experience when they know they have one or more dependable workmen in each of their several departments who will look after their interests and see to it that nothing goes out that will be detrimental. This same relief only to a greater extent is experienced by all manufacturers who are using the late model Linderman Dovetailer as the joints made by this method are superior in every respect than by any other way.

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### A Grinder for High Speed Cutter Heads

With the advent of the High-Speed Flooring Machine, it became necessary to perfect a machine that would grind all the knives on a cutter head, without re-setting or removing the head from the stud.

J. A. Fay & Egan Compony, of Cincinnati, Ohio, have come to the front with their No. 297 Universal Cutter-head Grinder, shown herewith. This machine is designed to grind any kind of cutter-head. It will be found especially valuable for high-speed matcher

heads, four-side slotted head, capped heads, circular heads with thin knives, solid milled heads, heads with formed cutters, etc. An automatic stop is provided to locate each knife or bit in proper position for grinding. Thin steel knives may be back-ground to give cutting bevel as well as clearance bevel. As regularly made, it will grind heads up to 7½-in. diameter and 10-in. long.

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132 per cent. Decreases occur in the case of only two of the larger cities.

For a number of cities and towns from which returns have not been received, and where the permit system is not in force, it would be reasonable to add 15 per cent. to the total. This would give a half-yearly return of eight million dollars for the whole Dominion, which may be accepted as an accurate estimate.

Official Figures

| | 1 6 mos. 1912 | 1st. 6 mos. 1911 | App. Inc. p.c.for 6 mos. |
|---|---|---|---|
| Toronto | $13,195,271 | $11,930,953 | 11 |
| Winnipeg | 11,205,600 | 9,058,150 | 23* |
| Vancouver | 8,132,720 | 9,191,524 | 12* |
| Montreal | 8,132,720 | 7,306,136 | 11 |
| Edmonton | 7,725,622 | 1,620,431 | 376 |
| Saskatoon | 4,634,685 | 2,574,441 | 80 |
| Hamilton | 3,145,600 | 2,246,780 | 40 |
| Regina | 2,549,770 | 2,936,930 | 15 |
| Ottawa | 2,120,000 | 1,393,370 | 52 |
| Fort William | 1,743,425 | 750,075 | 132 |
| Maisonneuve | 817,428 | 748,900 | 90 |
| New Westminster | 785,578 | 613,580 | 28 |
| Lethbridge | 719,343 | 528,950 | 36 |
| Port Arthur | 700,994 | 312,985 | 124 |
| Brantford | 657,230 | 282,228 | 133 |
| London | 509,598 | 458,423 | 11 |
| Windsor | 433,830 | 396,795 | 9 |
| St. Boniface | 395,530 | 467,880 | 16* |
| Berlin | 332,950 | 242,585 | 37 |
| St. John | 315,950 | 211,700 | 49 |
| Sydney | 254,616 | 282,052 | 10* |
| Kingston | 224,059 | 133,223 | 68 |
| Galt | 204,032 | 163,920 | 25 |
| Nelson | 198,015 | 90,705 | 118 |
| Stratford | 202,791 | 53,590 | 278 |
| Peterboro | 188,858 | 186,786 | 1 |
| Welland | 124,186 | | |
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are yoked and have micrometer screw adjustment with clamp nuts, insuring extreme accuracy in gauging the amount of cut taken. The yoke is mounted on dovetailed slides and provided with a lever for cross-grinding. The cutter head stand is universal, swivels to any angle with stop pins to lock in parallel or right-angle position. Graduations are provided for accurately setting to any angle in either direction. The spindle stand is bored 1 3/16 in. to receive spindle stud for any size head. Head stand is mounted on a carriage having vertical adjustment by means of hand wheel, as shown, and lateral movement on planed dovetailed ways by means of a lever operating through rack and pinion. Spindle is of best crucible steel, running in self-oiling side-wing clamp boxes; steel collars are provided to take up end play.

This grinder is certain to prove to be a great relief to the manufacturers who have to keep their planers keyed up to their highest efficiency all day long.

Further information, details of construction, prices, etc., may be had upon application to J. A. Fay & Egan Company, 153-173 West Front Street, Cincinnati, Ohio.

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### The Good Sawyer

The good sawyer must, to begin with, have natural traits that fit him for the work; he must be born to it, so to speak. You can't look at a man, however, and tell whether he is born to be a sawyer or to run a wheelbarrow, but you can tell, if you will observe him closely in action, after he has been in service long enough to have his hand in.

A good sawyer does not slam and bang things around. If he is running a saw mill he doesn't back the carriage off from 4 ft. to 6 ft., taking a running jump and shoot it at the saw; neither does he let it go full tilt through knots and easy places alike. He starts his saw to the log carefully and easily so that there is no jar or jerk, and in going through the cut he eases up or crowds according to the cut and how the saw is running. There seems to be a bond of feeling between him and the saw that "senses" when it is laboring hard, when he can crowd it, and when he should ease up and half unconsciously he does what we call nursing it right through. When you see a man doing that, doing it not just now and then, but continuously and easily all through the day, and one who in reversing his carriage runs it back andstops just at the right point without wasting a lot of space gigging back and forth and jerking around, then you can put it down that you have found a good sawyer.

In a different manner you can find some of the same traits in a sawyer handling any kind of a rig from a small rip saw to a band scroll saw. No matter what the difference in size or kind of work, there are certain things in common with all saws, a certain manner of treatment in the handling that a good sawyer finds easily and naturally, and just as naturally observes. The man at the rip saw, for example, will not jamb his stuff into the saw suddenly and choke it down, but will observe the same methods of feeling that a careful mill sawyer does. It is the same way at the band scroll saw. The good sawyer does not put tension on recklessly and with hard jerks, but carefully adjusts his machine and his saw, looks after his guiles and his table, handles his work as if he had respect for it, and at the same handles it with greater east.

### Handling Veneer Logs

Modern methods are finding their way into the logging woods as well as the sawmill and veneer plant, but it takes some modifications to apply the modern methods of mill logging to veneer logs. As veneer logs are the select few in many woods operations, it is not generally practical to handle them in the same manner as mill logs where the stumpage is taken clean. Especially is this true of the fine oak logs, which are only to be had in small numbers. Some millman may get them out with saw timber, and thus justify tram roads and power loaders. On the other hand, many of the finest oak veneer logs are gathered one or two at a time, and must be handled in the primary stages by main strength.

In handling the veneer logs on the yard and in the factory, every veneer manufacturer should make it his business to study modern methods. Many a veneer manufacturer is diligent in his efforts at mechanical manipulation from the time he begins cutting his veneer blocks until the finished product is bundled for shipment, and also to minimize his waste, but at the same time neglects bigger items of the same nature in the log yard.

The trade is gradually getting away from this and learning that there is room for effective saving of both time and timber by giving more attention to the careful handling of logs on the yard. In rambling about the country one comes across evidence of this, and often instances of men grasping one point and missing another. There is a case on record where one concern for years had been dumping logs from barges into the river by hand, then pulling them up the slip a ways and rolling and banking them on the yard by hand, to be afterward rolled on again by hand to be brought into the factory. A big power derrick, with a long boom, was put in that would swing logs from the barke and pile them on the bank, and pick them from either the barke or the bank and swing them onto the truck for the factory. The original installation cost quite a sum of money,

On another yard was found something else that this one had neglected, and something neglected that this one had. The other yard had no derrick, not even a truck for running the logs in to the mill. They were handled by main strength, and cut into block lengths with a cross-cut saw, instead of being run on a truck under the regulation drag saw. But here due thought was exercised for the care of the logs to prevent damage and waste. The ends were carefully painted, and the logs as a rule were of high quality, so that there was but little waste as compared to that of some other plants.

The instance given might be termed two cases of hobby riding. In one instance the hobby was power log handling appliances; in the other it was the care of logs, and that it paid in each case, there is not much room for doubt. Each concern is successful, and is making a fair share of money. Looking at the two, however, one can not help but speculate on what the advantages might be if each would ride both hobbies instead of only one.

Cost of handling and timber saving are just as important on the log yard as inside the factory. There has been enough development in log handling appliances to enable one to get something practical to fit any yard needs or conditions. It is a subject worth taking up, for it is on the log yard that a great deal of veneer factory cost is pulled up, and it is here, too, where much of the waste starts.

# A Machine Woodworking Study in Birch

By Robert G. Orr

Birch, as a valuable article in furniture making, is also a study fit for the brightest and most experienced mechanic. First comes the selection of the timber, which must be of the same age, growth and the same degree of dryness.

In no other timber must such care in drying be taken, as the wood in itself is of a nature which absorbs moisture very rapidly, causing it to warp in almost every direction.

For example, a top that is of glued-up stock will warp on the joints from the simple process of gluing. A top made in this manner must be sanded to a perfectly even surface before working on any further. At this stage a straightedge should be laid on the top, and tried at every point until it lies absolutely level at all points.

### A Legacy for the Finisher

After this top has left the woodworker and gone to the finisher, the trouble has started in earnest. If stains are applied with the brush, they should be of sufficient strength in order that they may be applied as lightly as possible. Flowing on with the brush, one side at a time, will warp a top before it can possibly be turned over and applied to the other side. A dip tank for stain is preferable, as it comes nearer coating the article at the same moment, causing both sides to draw against each other, holding each piece absolutely square.

Not long ago the writer was called in to see a stand top which had warped enough to loosen one leg and tighten up on the holding of the other three until the entire structure was as dilapidated as an old strawstack after a Kansas cyclone had struck it. Now, the question arises, where was the trouble?

On investigation, I discovered that in selecting the narrow boards forming the top little care had been exercised in selecting pieces of the same growth. A straight-grained piece had been glued to one of curly nature, and on the other side of the curly piece another straight-grain had been applied, the grain running in the opposite direction. It will be readily seen that when the top began to age something had to give.

### Corners Curl of Boards

Again, on this same top all the finish had been applied to the top and nothing to the under side, causing a reflex action in each board, which resulted in a corner curling up like smoke in a March wind. Too many manufacturers put all their effort and expense in the woodworking department, leaving so small a margin to the finish-room that the finish is really a detriment to their work.

The question may arise in the mind of the reader what would be the correct method of procedure in getting out a top of this kind? In answer, I will give my own ideas from the experience gleaned in about fourteen months' work with birch.

First, see that your wood is dried and cooled exactly the same. After drying, cooling and cutting up the proper length, select the pieces and pile them on a truck, so that each board of the same nature and growth will be assembled in the same top.

When the pieces are sent to the matcher the same care must be taken, as a good many tops go wrong in matching as well as anywhere else.

Now, we are ready for the glue-room. Here the glue must not only be of the proper thickness, but the heat of the room ought also to be of the same temperature, or a little more than the top has been subjected to in the dry-kiln. I have seen hundreds of pieces of glued-up work go wrong from gluing in a cold room. Glue joints need to be dried as rapidly as possible to prevent water absorption by the wood.

### Planing, Sanding and Staining

The planing and sanding can be done the same as in other tops, except, as previously stated, it must be brought down to a perfect surface. After shaping and finishing the edge and applying the rail as desired, this top is ready for the finishing.

In staining, the best results are obtained from dipping, which gets all parts covered at practically the same time. In this I refer more especially to colors using water or spirit stains. Oil stains are not so liable to warp as are the others. After the stain has dried sufficiently, a coat of shellac applied on both sides is next in order. This will prevent any absorption of moisture. If one coat of shellac does not sufficiently fill the pores, apply two, as shellac is considerably cheaper than warped tops that are returned from dissatisfied customers. After this, finish can be applied as desired on the top side only. Birch worked in this manner well, will prove out O. K. in nine cases out of ten.

You will see from the foregoing that the writer is not a believer in a good hot dry-kiln and a shop cold enough to make the men hustle to keep warm. More manufacturers lose from the abuse of first-class dry lumber than they do from any slowness of the woodworker.

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### The Sanding Machine

The operator doing cabinet work that is to be finely finished, should strive to avoid heavy sanding by doing his planer work so well that it is not needed. It is not merely a matter of saving the sanding machine from burdensome work, though that is a factor to be considered. It is more a matter of getting results out of the finished stock.

If there is much difference in the texture of face wood, heavy sanding results in cutting down the softer parts, and when the wood is highly finished it shows uneven on the surface. This is often noticeable in quartered oak; the "splash line" is very hard, and when there is heavy sanding done on it, it will often make the splash line figure look raised on the surface, and this mars the beauty of fine finish. The same thing is true in a different degree and manner with many kinds of wood.

Heavy work at the sander results in sanding down some portion below the other, and the surface therefore is not as good as it should be. To avoid this, one should finish as smoothly as practical with the planer. If the stock is first dressed and then worked through a series of machines, it should be carefully dressed again on the finishing planer, and in this final dressing great pains should be taken in setting the knives and finishing the stock so as to have it free from waves and raised grain, and smooth enough that only very light sanding is required to finish it off.

are yoked and have micrometer screw adjustment with clamp nuts, insuring extreme accuracy in gauging the amount of cut taken. The yoke is mounted on dovetailed slides and provided with a lever for cross-grinding. The cutter head stand is universal, swivels to any angle with stop pins to lock in parallel or right-angle position. Graduations are provided for accurately setting to any angle in either direction. The spindle stand is bored 1 3/16 in. to receive spindle stud for any size head. Head stand is mounted on a carriage having vertical adjustment by means of hand wheel, as shown, and lateral movement on planed dovetailed ways by means of a lever operating through rack and pinion. Spindle is of best crucible steel, running in self-oiling side-wing clamp boxes; steel collars are provided to take up end play.

This grinder is certain to prove to be a great relief to the manufacturers who have to keep their planers keyed up to their highest efficiency all day long.

Further information, details of construction, prices, etc., may be had upon application to J. A. Fay & Egan Company, 153-173 West Front Street, Cincinnati, Ohio.

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### The Good Sawyer

The good sawyer must, to begin with, have natural traits that fit him for the work; he must be born to it, so to speak. You can't look at a man, however, and tell whether he is born to be a sawyer or to run a wheelbarrow, but you can tell, if you will observe him closely in action, after he has been in service long enough to have his hand in.

A good sawyer does not slam and bang things around. If he is running a saw mill he doesn't back the carriage off from 4 ft. to 6 ft., taking a running jump and shoot it at the saw; neither does he let it go full tilt through knots and easy places alike. He starts his saw to the log carefully and easily so that there is no jar or jerk, and in going through the cut he eases up or crowds according to the cut and how the saw is running. There seems to be a bond of feeling between him and the saw that "senses" when it is laboring hard, when he can crowd it, and when he should ease up and half unconsciously he does what we call nursing it right through. When you see a man doing that, doing it not just now and then, but continuously and easily all through the day, and one who in reversing his carriage runs it back andstops just at the right point without wasting a lot of space gigging back and forth and jerking around, then you can put it down that you have found a good sawyer.

In a different manner you can find some of the same traits in a sawyer handling any kind of a rig from a small rip saw to a band scroll saw. No matter what the difference in size or kind of work, there are certain things in common with all saws, a certain manner of treatment in the handling that a good sawyer finds easily and naturally, and just as naturally observes. The man at the rip saw, for example, will not jamb his stuff into the saw suddenly and choke it down, but will observe the same methods of feeling that a careful mill sawyer does. It is the same way at the band scroll saw. The good sawyer does not put tension on recklessly and with hard jerks, but carefully adjusts his machine and his saw, looks after his guiles and his table, handles his work as if he had respect for it, and at the same handles it with greater east.

### Handling Veneer Logs

Modern methods are finding their way into the logging woods as well as the sawmill and veneer plant, but it takes some modifications to apply the modern methods of mill logging to veneer logs. As veneer logs are the select few in many woods operations, it is not generally practical to handle them in the same manner as mill logs where the stumpage is taken clean. Especially is this true of the fine oak logs, which are only to be had in small numbers. Some millman may get them out with saw timber, and thus justify tram roads and power loaders. On the other hand, many of the finest oak veneer logs are gathered one or two at a time, and must be handled in the primary stages by main strength.

In handling the veneer logs on the yard and in the factory, every veneer manufacturer should make it his business to study modern methods. Many a veneer manufacturer is diligent in his efforts at mechanical manipulation from the time he begins cutting his veneer blocks until the finished product is bundled for shipment, and also to minimize his waste, but at the same time neglects bigger items of the same nature in the log yard.

The trade is gradually getting away from this and learning that there is room for effective saving of both time and timber by giving more attention to the careful handling of logs on the yard. In rambling about the country one comes across evidence of this, and often instances of men grasping one point and missing another. There is a case on record where one concern for years had been dumping logs from barges into the river by hand, then pulling them up the slip a ways and rolling and banking them on the yard by hand, to be afterward rolled on again by hand to be brought into the factory. A big power derrick, with a long boom, was put in that would swing logs from the barke and pile them on the bank, and pick them from either the barke or the bank and swing them onto the truck for the factory. The original installation cost quite a sum of money,

On another yard was found something else that this one had neglected, and something neglected that this one had. The other yard had no derrick, not even a truck for running the logs in to the mill. They were handled by main strength, and cut into block lengths with a cross-cut saw, instead of being run on a truck under the regulation drag saw. But here due thought was exercised for the care of the logs to prevent damage and waste. The ends were carefully painted, and the logs as a rule were of high quality, so that there was but little waste as compared to that of some other plants.

The instance given might be termed two cases of hobby riding. In one instance the hobby was power log handling appliances; in the other it was the care of logs, and that it paid in each case, there is not much room for doubt. Each concern is successful, and is making a fair share of money. Looking at the two, however, one can not help but speculate on what the advantages might be if each would ride both hobbies instead of only one.

Cost of handling and timber saving are just as important on the log yard as inside the factory. There has been enough development in log handling appliances to enable one to get something practical to fit any yard needs or conditions. It is a subject worth taking up, for it is on the log yard that a great deal of veneer factory cost is pulled up, and it is here, too, where much of the waste starts.

# A Machine Woodworking Study in Birch

By Robert G. Orr

Birch, as a valuable article in furniture making, is also a study fit for the brightest and most experienced mechanic. First comes the selection of the timber, which must be of the same age, growth and the same degree of dryness.

In no other timber must such care in drying be taken, as the wood in itself is of a nature which absorbs moisture very rapidly, causing it to warp in almost every direction.

For example, a top that is of glued-up stock will warp on the joints from the simple process of gluing. A top made in this manner must be sanded to a perfectly even surface before working on any further. At this stage a straightedge should be laid on the top, and tried at every point until it lies absolutely level at all points.

### A Legacy for the Finisher

After this top has left the woodworker and gone to the finisher, the trouble has started in earnest. If stains are applied with the brush, they should be of sufficient strength in order that they may be applied as lightly as possible. Flowing on with the brush, one side at a time, will warp a top before it can possibly be turned over and applied to the other side. A dip tank for stain is preferable, as it comes nearer coating the article at the same moment, causing both sides to draw against each other, holding each piece absolutely square.

Not long ago the writer was called in to see a stand top which had warped enough to loosen one leg and tighten up on the holding of the other three until the entire structure was as dilapidated as an old straw-stack after a Kansas cyclone had struck it. Now, the question arises, where was the trouble?

On investigation, I discovered that in selecting the narrow boards forming the top little care had been exercised in selecting pieces of the same growth. A straight-grained piece had been glued to one of curly nature, and on the other side of the curly piece another straight-grain had been applied, the grain running in the opposite direction. It will be readily seen that when the top began to age something had to give.

### Corners Curl of Boards

Again, on this same top all the finish had been applied to the top and nothing to the under side, causing a reflex action in each board, which resulted in a corner curling up like smoke in a March wind. Too many manufacturers put all their effort and expense in the woodworking department, leaving so small a margin to the finish-room that the finish is really a detriment to their work.

The question may arise in the mind of the reader what would be the correct method of procedure in getting out a top of this kind? In answer, I will give my own ideas from the experience gleaned in about fourteen months' work with birch.

First, see that your wood is dried and cooled exactly the same. After drying, cooling and cutting up the proper length, select the pieces and pile them on a truck, so that each board of the same nature and growth will be assembled in the same top.

When the pieces are sent to the matcher the same care must be taken, as a good many tops go wrong in matching as well as anywhere else.

Now, we are ready for the glue-room. Here the glue must not only be of the proper thickness, but the heat of the room ought also to be of the same temperature, or a little more than the top has been subjected to in the dry-kiln. I have seen hundreds of pieces of glued-up work go wrong from gluing in a cold room. Glue joints need to be dried as rapidly as possible to prevent water absorption by the wood.

### Planing, Sanding and Staining

The planing and sanding can be done the same as in other tops, except, as previously stated, it must be brought down to a perfect surface. After shaping and finishing the edge and applying the rail as desired, this top is ready for the finishing.

In staining, the best results are obtained from dipping, which gets all parts covered at practically the same time. In this I refer more especially to colors using water or spirit stains. Oil stains are not so liable to warp as are the others. After the stain has dried sufficiently, a coat of shellac applied on both sides is next in order. This will prevent any absorption of moisture. If one coat of shellac does not sufficiently fill the pores, apply two, as shellac is considerably cheaper than warped tops that are returned from dissatisfied customers. After this, finish can be applied as desired on the top side only. Birch worked in this manner well, will prove out O. K. in nine cases out of ten.

You will see from the foregoing that the writer is not a believer in a good hot dry-kiln and a shop cold enough to make the men hustle to keep warm. More manufacturers lose from the abuse of first-class dry lumber than they do from any slowness of the woodworker.

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### The Sanding Machine

The operator doing cabinet work that is to be finely finished, should strive to avoid heavy sanding by doing his planer work so well that it is not needed. It is not merely a matter of saving the sanding machine from burdensome work, though that is a factor to be considered. It is more a matter of getting results out of the finished stock.

If there is much difference in the texture of face wood, heavy sanding results in cutting down the softer parts, and when the wood is highly finished it shows uneven on the surface. This is often noticeable in quartered oak; the "splash line" is very hard, and when there is heavy sanding done on it, it will often make the splash line figure look raised on the surface, and this mars the beauty of fine finish. The same thing is true in a different degree and manner with many kinds of wood.

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Or, if it is to be scraped, have it so that very light scraping will finish.

Then you not only get the ideal finish, but save the scraper and sander from doing work that was never intended to be done by such machines; and it keeps them in better shape to do the high quality finishing work they are intended for.

### Finishing of Stock for Box Printer

It is now an era of more exactness in planing-mill work than we ever had before. There are various influences exerting themselves in this connection. One of these that perhaps may seem peculiar to some branches of the trade, but is familiar to the box factory, is that of the exacting requirements of planing work to put lumber in shape for the box-board printer.

Talk to a maker of prniting presses for the box factory and the chances are he will say that their greatest difficulty is to get the planers and planer men to make stock of exactly uniform thickness.

### Close measurements in the Box Business

It is easy enough to get stock that is seemingly of uniform thickness, but when it comes to the exacting needs of a printing press, where just a little variation makes a big difference, it is found that exactness in thicknessing lumber for the printing press is a thing for microscopic measurement. I n brief, it is getting it down finer than the average planer man is in the habit of doing.

There are two kinds of trouble. One is the variation in thickness of stock dressed during the different days, and the other is the variation of thickness from one edge of the stock to the other. Just the least variation will show up where neat printing is being done. The harder the wood, the more aggravating is this variation in thickness.

In a talk on this subject with the superintendent of one of the biggest box factories in the country, he explained that he was looking for something new in box printers, something that would adjust itself to variations in the thickness of their stock.

When this was taken up with the makers of box printers they said it was a sort of impractical proposition, because to provide a cushion or spring to the printers was to impair the clearness of the impression made. Furthermore, the printing press man argued that the box factory man should look closer after his planers, he should establish certain standards for thickness and insist that his stock be kept up to those standards.

There has been considerable attention concentrated on this point, too, by exacting box manufacturers, because box printing has come to be recognized as an important feature in box-making. It has reached that point where it is regarded as important in the advertising of the products packed in boxes and it has been elaborated on until it is something of a fine art. The more it is elaborated on and the finer it becomes artistically the more imperative becomes the matter of dressing and finishing stock for the box printer.

### The Sander for Finishing Box Stock

Now, while this much of the present story and argument is fairly well known to box manufacturers, even though it may be news to some people in other lines, there is something else; something that perhaps has not been thought of and experimented with enough by the box men themselves, and that is the idea of using the sander after the planer for finishing the box stock.

That the sander would improve it there is no question, but the average box manufacturer would perhaps, at first figuratively throw up his hands at the idea of finishing his box lumber through a sander.

He doubtless thinks he is spending quite a lot on it to put it through a smoothing planer, and then if the boxes call for a little smoothing off with sandpaper it is generally done on a disk wheel or belt and is usually confined to sanding the corners and box is nailed together.

Really the logical time to sand box material is before it goes to the printer, and if it is lock-cornered box, preferably after the lock has been cut. There are several side issues and arguments that might be devolved in this connection, but the one main point in mind right now is the one we will follow, and that is the advantage that sanding through a regulation drum sander should offer to the box man who is making a strong feature of elaborate and artistic printing.

### Stock Surface Conditions in Printing

It would not only minimize the trouble that has been complained of so long in the past about variations in thickness, but it would also give a better surface for printing. Those are the two important points that it is desired to bring out here, and to impress as strongly as possible in the hope that they may lead to the coupling of a sander on to the regular line of box machinery. The first one is that of getting the size more uniform, because the sander will take care of some of this slight variation complained of. The other important point is that a sanded surface is or should be a much better surface to print on than a surface fresh from a planer.

The surface coming from a planer is slick and glossy and will not take the ink of the printing press as readily as a surface that has been neatly sanded. At least, that is the opinion of the writer, and it looks like this and the other point of thicknessing should make a pretty strong argument in favor of using the sander more extensively in the box factory.—T. Morgan.

### Manufacture and Uses of Veneers

The increasing use of veneers in the United States and Canada is forcibly illustrated by the statement that in 1910 there were 477,479,000 ft., log scale, of wood made into veneers, which was about 10% more than the consumption in the previous year. Formerly veneer making was confined to a few hardwoods selected for beauty of grain and used as an exterior finish for high-grade cabinet work and furniture. With the improvement of veneer machinery, however, and methods of drying there has developed a large demand for veneers cut from cheap woods and used for drawer bottoms, glass backing, filling in three-ply lumber, packing boxes, fruit baskets, veneer barrels, etc. On account of the constantly increasing price of hardwood lumber used for making cabinets, furniture, fixtures, etc., built-up lumber which is usually made of three-uly veneer is being extensively substituted.

The principal methods of manufacture are rotary cutting, slicing and sawing. The first named is the method most extensively used and by it the cheap veneers are cut. Although the highest grade veneers are made by sawing, veneers made by the slicing and rotary processes are more extensively used than the sawed product, as they are less expensive to manufacture.

According to a bulletin issued by the Bureau of the Census of the Department of Commerce and Labor, red gum was much more widely used for veneer in 1910 than any other wood and in that and the three previous years it constituted approximately 30 per cent. of all the wood used. The tendency or red gum to check and warp when used as lumber is overcome by converting it into veneer. It cuts well especially in the rotary process and with improved dryers is easily kiln dried. For the manufacture of built-up lumber red gum is especially adaptable because it takes glue readily and because it can be used as either face wood or filler.

Next to red gum yellow pine is the most important wood in respect to the quantity used in the manufacture of veneer. During each of the past two years maple, yellow poplar, white oak and birch have shown increases in consumption, while each of these woods showed a decrease in 1908. The adaptability of Douglas fir for making veneers is becoming more widely recognized as is indicated by the fact that the quantity reported in 1910 exceeds the combined quantities for the three previous years.

In 1910 Michigan, Indiana, Illinois, Arkansas, Missouri and Wisconsin each report a consumption of veneer material amounting to over 30,000,000 ft., log scale. Taken altogether, these six states used 42½ per cent. of the total quantity consumed in that year. The veneer industry is now most important in the central Mississippi Valley and the states bordering on Lake Michigan.

### Is the Belt Stud Coming into Favor Again?

Is the old belt stud going to find favor with belt users again, or will leather and wire lacing continue to be the favorite methods of joining belts, is a question asked by not a few machine men.

A representative of the Canadian Woodworker met an old mill hand recently, who claims that belt studs are the first choice in the mill where he is employed. It was about two years ago, this man explained that after having considerable trouble with the belts on two molders under his care, that he decided to change from leather to the old fashioned stud. Since that time some of the other machine hands have made the same change and are quite satisfied that the change was a good one.

Just at this time the writer has no intention of arguing for or against the merits of the belt stud, but has to admit that the appearance of the belts spoken of seem to bear out our friend's statement that it is a splendid fastener for straight running leather belts, say from two inches up to six inches wide. They are made in four sizes and can be had either in gun metal or brass. Whether they will or will not come into favor again we will let our readers say.

"In installing a new machine that you know very little about," a manager said, "the right way to determine what it is capable of doing is to have the makers send an expert. To gain knowledge from this expert, place at his disposal a first-class man who will grasp the explanation, and not some cheap fellow who claims he knows all the expert is taking about, when there is only one chance in a hundred that he grasps one point in ten. In a case of cheap labor, after the expert has departed and the machine will not give satisfaction, the manager of the concern is under the impression that the man had all the knowledge necessary for the operation of the machine, and he will be deceived to the extent of condemning the machine, whereas it is the fault of the inferior man as an operator in nearly every instance."

### Telling When the Lumber is Dry

How many people, though they have been in the wood-working business for some time, can tell even approximately how dry wood is, by inspection? Of course, when you cut into a lot of 2 in. oak, it may be possible to tell whether all the sap is out of it or not, but even then, to say how dry it is takes a mighty good guesser. Ordinarily wood that has been well kiln-dried and allowed to come to equilibrium with the air, will show from 3 to 8 per cent. moisture, and even as high as 12 per cent., under some special conditions. It is a matter of judgment that means something in a financial way to be able to tell when the kiln is ready to empty, so as not to spend money drying some dry lumber, or, on the other hand, to empty the kiln of some partially dry stock.

One of the ways of doing this is to cut out a section of a board, and by observing the appearance of the cut and general condition of the sawdust, and perhaps the smell or taste of the wood, arrive at some conclusion as to its condition as to moisture. While this method may answer the purpose of some people, through long experience with it, and may give better results than no method at all, I should like to advocate a simple method that will give reliable results every time, and will show accurately the condition of the wood when the car is tested to see if it is ready to come out of the kiln.

The only thing required is a pair of small scales, accurate to ¼ oz., and a warm place, at the temperature of boiling water. To test a car, cut several disks or sections from various pieces and weigh them accurately, keeping on a regular ruled form all weights, in order to prevent confusion. Then place these weighed disks over the boiler or on a steam coil where they will be kept at the temperature of boiling water for at least ten hours, then weigh again. The loss in weight will show as moisture, and, with ordinary care, is quite accurate. To calculate as percentage of water of the wood as tested, divide the loss in weight by the first weight taken. In carefully-dried woods this determination should show 3 to 5 per cent. water, and the car is then taken out and allowed to come to equilibrium with the outside air, which will take two or three days. With birch, gum or other wood which shows a tendency to twist and curl, the pile should be well weighted on the top layers until it has come into equilibrium with the humidity of the air.

Simply stated, all that is done is to take an accurate weight of a sample of the kiln-dried stock, dry it for a day and weigh it again. Divide the loss in weight by the original weight, and this should show from three to five, certainly not over five, for thoroughly-dried stock. With this system in use some of the complaint about irregularly dried stock might disappear, and with better results to all parties involved. Try it and see if it isn't worth while.

A recent invention is a belt shifter, by E. J. Egan, of Winchester, Ky. This invention has for its object the provision of a simple and positively operated mechanism for use in shifting a belt on stepped cone pulleys, wherein the shifting mechanism is supported on a travelling carriage, operated by a travelling cam.

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"In installing a new machine that you know very little about," a manager said, "the right way to determine what it is capable of doing is to have the makers send an expert. To gain knowledge from this expert, place at his disposal a first-class man who will grasp the explanation, and not some cheap fellow who claims he knows all the expert is taking about, when there is only one chance in a hundred that he grasps one point in ten. In a case of cheap labor, after the expert has departed and the machine will not give satisfaction, the manager of the concern is under the impression that the man had all the knowledge necessary for the operation of the machine, and he will be deceived to the extent of condemning the machine, whereas it is the fault of the inferior man as an operator in nearly every instance."

### Telling When the Lumber is Dry

How many people, though they have been in the wood-working business for some time, can tell even approximately how dry wood is, by inspection? Of course, when you cut into a lot of 2 in. oak, it may be possible to tell whether all the sap is out of it or not, but even then, to say how dry it is takes a mighty good guesser. Ordinarily wood that has been well kiln-dried and allowed to come to equilibrium with the air, will show from 3 to 8 per cent. moisture, and even as high as 12 per cent., under some special conditions. It is a matter of judgment that means something in a financial way to be able to tell when the kiln is ready to empty, so as not to spend money drying some dry lumber, or, on the other hand, to empty the kiln of some partially dry stock.

One of the ways of doing this is to cut out a section of a board, and by observing the appearance of the cut and general condition of the sawdust, and perhaps the smell or taste of the wood, arrive at some conclusion as to its condition as to moisture. While this method may answer the purpose of some people, through long experience with it, and may give better results than no method at all, I should like to advocate a simple method that will give reliable results every time, and will show accurately the condition of the wood when the car is tested to see if it is ready to come out of the kiln.

The only thing required is a pair of small scales, accurate to ¼ oz., and a warm place, at the temperature of boiling water. To test a car, cut several disks or sections from various pieces and weigh them accurately, keeping on a regular ruled form all weights, in order to prevent confusion. Then place these weighed disks over the boiler or on a steam coil where they will be kept at the temperature of boiling water for at least ten hours, then weigh again. The loss in weight will show as moisture, and, with ordinary care, is quite accurate. To calculate as percentage of water of the wood as tested, divide the loss in weight by the first weight taken. In carefully-dried woods this determination should show 3 to 5 per cent. water, and the car is then taken out and allowed to come to equilibrium with the outside air, which will take two or three days. With birch, gum or other wood which shows a tendency to twist and curl, the pile should be well weighted on the top layers until it has come into equilibrium with the humidity of the air.

Simply stated, all that is done is to take an accurate weight of a sample of the kiln-dried stock, dry it for a day and weigh it again. Divide the loss in weight by the original weight, and this should show from three to five, certainly not over five, for thoroughly-dried stock. With this system in use some of the complaint about irregularly dried stock might disappear, and with better results to all parties involved. Try it and see if it isn't worth while.

A recent invention is a belt shifter, by E. J. Egan, of Winchester, Ky. This invention has for its object the provision of a simple and positively operated mechanism for use in shifting a belt on stepped cone pulleys, wherein the shifting mechanism is supported on a travelling carriage, operated by a travelling cam.

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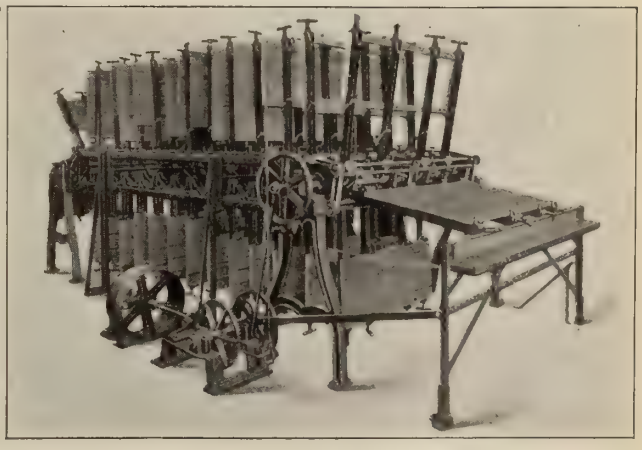


# From Coast to Coast

### Schooner Becomes Waterlogged

The lumber schooner Francomb, bound from Byng Inlet, Ont., to Buffalo, N.Y., became waterlogged in Lake Erie Thursday afternoon and reached Buffalo late Saturday, after a most eventful voyage. She is lying at the breakwater and drawing about twenty feet of water. The schooner was in tow of the steamer Mohegan, which also had the barges Mingoe and Aloha.

The Farncomb struck a derelict and sprung a leak. She began to fill rapidly and Captain sprung a leak. She began to fill rapidly and Capt. George Thordilksen ordered his men to places of safety. The crew barely had time to climb to the roof of the deckhouse so rapidly did the schooner settle in the water. Even then the waves were lapping about their limbs.

The master of the Mohegan was signalled and, after dropping his other two tows, put back to rescue the crew of the Francomb. There was a heavy sea rolling and he was forced to stand by for several hours. Late that night the Mohegan was able to get alongside the schooner and over 150,000 feet of lumber was lightered. The crew, however, remained aboard the Francomb, and was floated down the lake.

### Disastrous Fire at Haliburton

Haliburton was visited by a disastrous fire when the large saw mill owned and operated by Wm. Laking was totally destroyed.

The cause of the fire is a mystery, and but for the efforts of the villagers the fire might have spread. The flames, however, were confined solely to the mill.

The damage will probably amount to $25,000, with only $1,500 insurance.

### Planing Mill Takes Fire in West Toronto

The West Toronto firemen were called out to Batt's planing mill, Pacific avenue, where fire, through some unknown cause, started in a pile of lumber in the building. It was quickly extinguished before much damage was done.

### Youth Lost a Finger

Clifford Fisher, aged 16, of 160 Robinson street, Toronto, had a finger badly crushed. He is employed at the Matthews Inlaying Works, and got the member caught in a machine. It was so badly smashed that it had to be amputated at the Western Hospital.

### Aged Piano-Maker Dead

Probably the oldest piano-maker in Toronto, Mr. David Gourlay, who was connected with the Mason-Risch Co. from 1877 until 1890, died a few days ago at Ancaster, Ont.

Mr. Gourlay was born in Fifeshire, Scotland, 84 years ago, and when a young man of 23 came to the States. Four years afterwards he went back to Scotland, but returned to this side of the Atlantic, and during the past 58 years had resided in Streetsville, Montreal and Toronto. He had been living retired since 1895.

### Pine Lands Food for Fire

Twenty-four miles of the richest pine land in the Murray Bay district of Quebec have been destroyed by forest fires which are still burning.

Mr. John Phillips, who conducts the saw mill in South Onslow, Ont., has been successful in being awarded the contract for supplying the C.N.R. with the timber which they use for the construction of their road from Fitzroy Harbor to Bristol Corners.

### Fires Destroy Timber

Sault Ste. Marie, Mich. A forest fire near Sheldrake, forty miles north of this city, has destroyed nearly 500,000 feet of high-grade white pine logs, valued at $750,000, according to reports received here last night.

It is said that settlers from the United States brought into Canada in the month of May about $25,000,000. Is it any wonder that the United States is anxious to keep these wealthy farmers at home?

### Fell Off the Scaffold

James Ferguson, 100 Arthur street, Guelph, employed as a carpenter on one of the new buildings on the Prison Farm, met with an accident which might have resulted much more seriously than it did. He was working about ten feet above the ground on the dormitory building, when he missed his footing on the scaffold and fell backwards. He was picked up in an unconscious condition, but soon rallied.

### Lumber Yard Visited by Fire

Fire did upwards of $1,000 damage in the lumber yards of W. J. Frick, of Oshawa, Ont., when a carload of shingles was destroyed. Although the flames were prevented from spreading to the large stacks of lumber in other parts of the yard they were not under control before great damage had been wrought to a fine new summer passenger car belonging to the Oshawa Railway Company, and which was standing loaded on an adjacent flat car. The car had been built in New York, and had just arrived here to help replace the cars which were burned in the big street railway car barn fire a few months ago.

### Box Factory Burned

Fire destroyed the Arnprior Box Company's factory at Arnprior recently.

### Fire in Lumber Yard

Seven hundred thousand feet of lumber owned by Harry E. Marshall, was destroyed by fire at Digby, N.S. There was a heavy gale from the southwest at the time. Sparks from the mill are supposed to have caused the fire. Insurance is only $300. The mill is situated at Sydas Lake, seven miles from Digby.

### "Made-in-Canada" Exhibit

Fifteen thousand people visited the Made-in-Canada train at Saskatoon, making the total attendance to date over 250,000.

# OPPORTUNITIES

**Advertisements inserted on this page for "Positions Vacant" or "Positions Wanted" twenty-five cents per insertion.**

### Port Arthur Gets Car Industry

Definite word was received that the long talked of five million dollar railway equipment plant for Port Arthur, Ont., has at last materialized and an immediate start is to be made on the work of construction.

### Sawmills Destroyed—Loss Sixty Thousand

The wood-working plant and sawmills of Boehmer Brothers at West Lehave, N.S., nine miles from Bridgewater, were completely destroyed by fire. The loss will be at least $60,000, with no insurance. The mills were among the best in the Province, and equipped with the most modern machinery.

Boehmer Brothers' mills were started thirty years ago, and were crowded with orders from all the Maritime Provinces. Forty men are out of work. The mills will be rebuilt.

### Hot Blaze in Planing Mill

Hope's planing mill at 498 Concord avenue, Toronto, was burned recently. The total loss was $3,500. Of this amount $1,500 was to the machinery and the remainder to the building, which was a two-storey structure. Luckily, Mr. Hope had just put $2965 insurance on the place last week so his loss will not be as great as it otherwise would have been. How the fire started no one seems to know. About $2.30 flames were seen shooting out of the building. A fire alarm was rung in, but although the fire department responded with their usual promptitude, the fire had gained quite a headway. It burned for about two hours and the entire structure was consumed. The hot weather had made the wood dry as tinder. It burnt like matchwood.

### C.P.R. to Build in Regina

The C.P.R. have established a record in rebuilding their freight sheds. The sheds were almost a total wreck and their whole yard was a scene of devastation. The yards are already nearly cleared, and five hundred carpenters have worked with feverish haste, so that the sheds are practically completed. The city has decided to build a corrugated iron warehouse, which will be rented to firms unable to find accommodation.

### Railway to Build Houses

The railway officials have also decided to erect a large number of residences, and have settled on plans for two classes of buildings, one a two-storey house to cost about $2,500, the other a bungalow costing about $1,800. If necessary they will build five hundred of these houses. Tenders for the houses have been called for, and work will be started at once.

Over a thousand carpenters are at work and more are pouring into the city on every train. All are being put to work. Hundreds of bricklayers are also busy and the residences which were slightly damaged or do not have to be torn down are being patched up for immediate occupancy in remarkably fast time.

**Manufacturers** Know that good work depends to a great extent upon good workmen. If you wish to get in touch with this class of men insert your want ad. on this page—the best men in the woodworking trade read it.

Wanted at once, factory carpenters and cabinet-makers, also two good woodturners for Sash, Door and Fixture factory. Only strictly temperate, first-class men need apply. Large modern factory, open shop, no trouble. Apply stating wages, experience, etc., to The Western Mfg. Co., Ltd., Regina, Sask.

Wanted—Foreman for woodworking department, employing from 30 to 40 men, manufacturing agricultural implements, washing machines, clothes wringers, etc. Duties to commence 1st of September. None other than first-class men need apply. Good salary paid to capable man. Apply stating age and experience to DAVID MAXWELL & SONS, St. Marys, Ont.

**WANTED**

A lumberman or practical builder with 5 to 10 thousand dollars. A **rare** opportunity for a man of ability of either kind.

**Box 44, City Heights, Vancouver, B.C.**

**Furniture and Show Case Manufacturers and Builders**

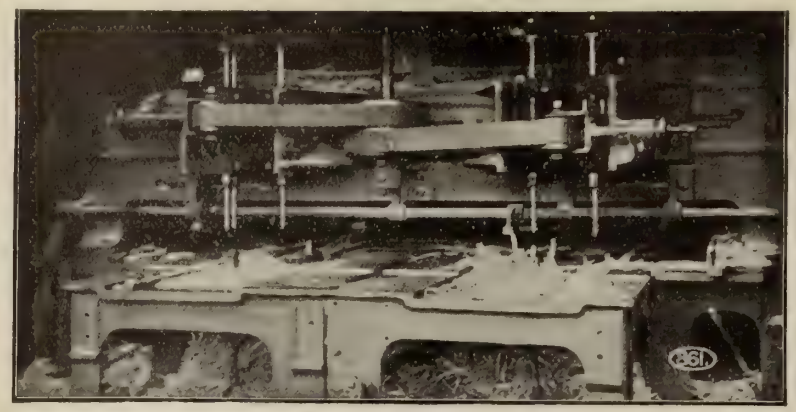
**ATTENTION**

We carry in stock a full line of Hardware Specialties for the manufacture of Show Cases, Counters etc., Furniture and Cabinets, Sash and Doors.

Our Catalog illustrates our numerous specialties and is complete with prices. Send us your name and address so we may send you one. We can very probably save you money on your present purchases.

**The Reflector & Hardware Specialty Mfg. Co.**

Western Ave. and Twenty Second Place, Chicago, Ill.



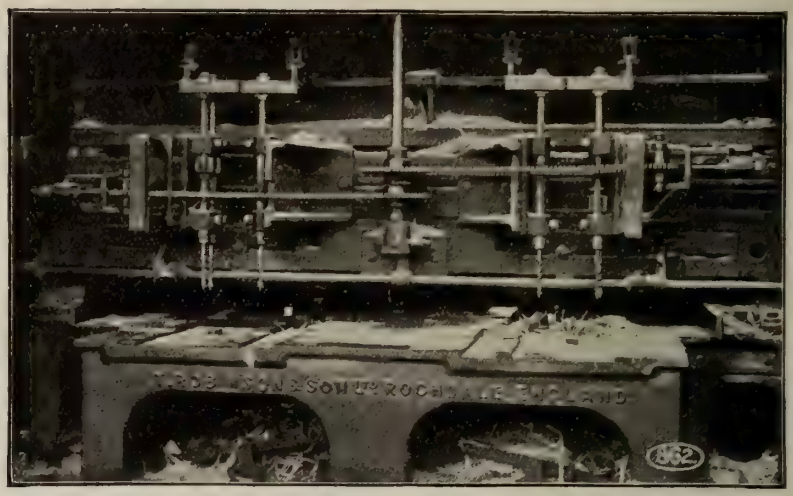
# Renold Patent Steel Driving Chains

## OVERCOME TRANSMISSION TROUBLES

Upper illustration shows leather belts driving an adzing and boring machine. Trouble was experienced with the belts.

The lower cut shows the same machine equipped with RENOLD CHAINS which not only overcame the trouble but increased the production over 30% and resulted in the users equipping in a similar manner all their machines.

**Write for catalog and particulars**



## Jones & Glassco

(Registered)

Canadian Agents

**200 St. Nicholas Bldg., MONTREAL**

A substitute shines brightly as a king
Until a king be by.
*Merchant of Venice*

# HARRIS HEAVY PRESSURE

**is the King of all Babbitt Metals**

**It is the Best for all General Machinery Bearings**

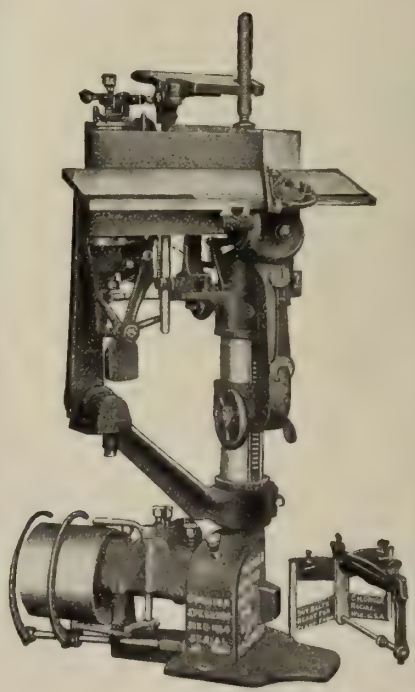
WRITE FOR PRICES

*Manufactured and Every Pound Guaranteed by*

## THE CANADA METAL CO., Limited

TORONTO, MONTREAL and WINNIPEG

# Manufacturers Attention!



Chicago, Ill., Jan. 20/12.
C. H. Driver,
Racine, Wis.

Dear Sir:—

Will you please send us cuts with full information and your very lowest cash price on "The Little Wonder Sander."

We have had one of your machines in operation in our factory for about nine years, but presume that you have made changes and improvements since then and of course we want one of the latest improved.

Your prompt reply will greatly oblige,

Very truly yours,
PRICE & TEEPLE PIANO CO

Since the above inquiry we have received their second order. This Sander is especially adapted for Piano Manufacturing, it is the only Combination, Reciprocating Belt and Spindle Sander, it covers a larger range of sanding than any other sander, it has proven to be a great Money Maker in all lines of manufacturing.

Write us for complete description

## C. H. DRIVER, Racine, Wisconsin, U.S.A.

*A Good Machine Like a Good Investment—Wants Picking Up Now*

## Our Improved
# Automatic Rounding Machine
### Is a Good Investment

**Because** it is the most perfect High-Speed Machine on the market.

No slippage or breakage of stock.

It is made in three sizes taking from ¼ in. to 3 in.

Rollers are self adjusting.

Rate of feed varies automatically according to diameter being turned.

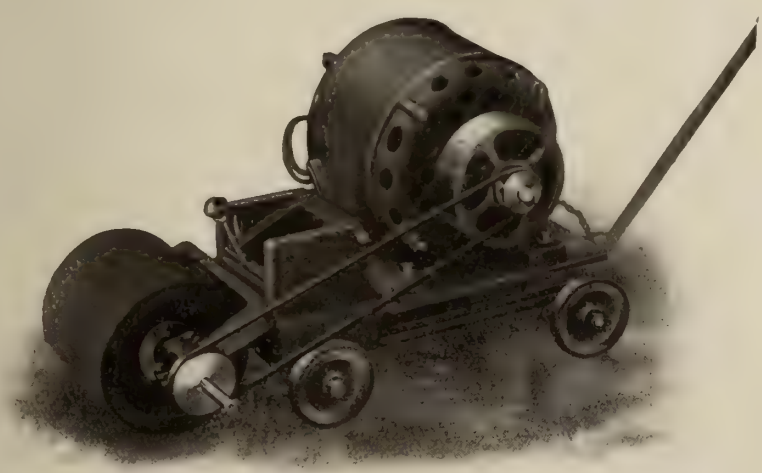
Suitable for Hard or Soft Woods.

## Turning and Boring Machines
Our Specialty

# WHITE & SONS, LTD.
ENGINEERS

PAISLEY, SCOTLAND

TELEGRAMS—WHITE, PAISLEY—A B C Code used on all Government Lists



**The Elliot Floor Sander**
for sanding and pollishing hardwood floors. Runs by any current.

**The Elliot Scroll Saw and Shaper**
cuts 2 in. thick runs by any ¼ or ½ horse motor or any power drive. The shaper can be set up in five minutes.

Write for particulars to

MANUFACTURERS OF THE ELLIOT WOODWORKER

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## Toronto, Ont.

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Thos. White & Sons, Paisley, Scotland.
Chicago Machinery Exchange.
Ober Mfg. Co., Chagrin Falls, O.
Baxter D. Whitney & Son, Winchendon, Mass.

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Chicago Machinery Exchange.
Fay & Egan Co., Cincinnati, Ohio.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

**BAND SAWS.**
Canada Machinery Corporation, Ltd., Galt, Ont.
Chicago Machinery Exchange.
Shurly Dietrich Co., Ltd., Galt, Ont.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
R. H. Smith Co., Ltd., St. Catharines, Ont.

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Mussens, Ltd., Montreal.
Canada Machinery Agency, Montreal.
Chicago Machinery Exchange.
Berlin Machine Works, Ltd., Hamilton, Ont.
Fay & Egan Co., Cincinnati, O.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
H. W. Petrie, Ltd., Toronto.

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Berlin Machine Works, Ltd., Hamilton. Ont.
Canada Machinery Agency, Monteral.
Mussens, Ltd., Montreal.
Fay & Egan Co., Cincinnati, O.

**BAND SAW STRETCHERS.**
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Fay & Egan Co., Cincinnati, O.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

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Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.

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Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Sadler & Haworth, Montreal.
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H. W. Petrie, Ltd., Toronto.

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Canada Machinery Agency, Montreal.
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Sadler & Haworth, Montreal.

**BELT FASTENERS.**
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Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Valley City Machine Works, Grand Rapids, Mich.
Baxter D. Whitney & Son, Winchendon, Mass.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
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Sheldons, Ltd., Galt, Ont.

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Canada Machinery Agency, Montreal.
Chicago Machinery Exchange.
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Hespeler Machinery Co., Ltd., Hespeler, Ont.
Valley City Machien Works, Grand Rapids, Mich.

**CHISELS.**
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J. A. Fay & Egan Co., Cincinnati, O.

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Berlin Machine Works, Ltd., Hamilton, Ont.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
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**CLUTCHES.**
J. A. Fay & Egan Co., Cincinnati, O.

**COLUMN CLAMPS.**
Black Bros. Machinery Co., Mendota, Ill.

**COLUMN MACHINERY.**
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J. A. Fay & Egan Co., Cincinnati, O.
C. Mattison Machine Works, Beloit, Wis.

**CORE BOX MACHINES.**
J. A. Fay & Egan Co., Cincinnati, O.
Chicago Machinery Exchange.
E. & B. Holmes Machinery Co., Buffalo, N.Y.

**CUT-OFF SAWS.**
Canada Machinery Corporation, Ltd., Galt, Ont.
Shurly Dietrich Co., Ltd., Galt, Ont.
Chicago Machinery Exchange.
Berlin Machine Works, Ltd., Hamilton,
Simonds Canada Saw Co., Montreal.
R. H. Smith C., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

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Hespeler Machinery Co., Ltd., Hespeler, Ont.
C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Samuel J. Shimer & Sons, Mitton, Pa.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
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H. W. Petrie, Ltd., Toronto.

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Elliot, Bathurst and College Sts., Toronto.

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J. A. Fay & Egan Co., Cincinnati, O.
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J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.

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Chicago Machinery Exchange.
Canada Machinery Corporation, Ltd., Galt, Ont.
Canadian Linderman Machine Co. Ltd., Woodstock, Ont.
J. A. Fay & Egan Co., Cincinnati, O.

**DOWEL MACHINES.**
Thos. White & Sons, Paisley, Scotland.
Canada Machinery Corporation, Ltd., Galt, Ont.
Chicago Machinery Exchange.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Valley City Machine Works, Grand Rapids, Mich.

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North Bros. Mfg. Co., Philadelphia, Pa.

**DRILLS (Reciprocating).**
North Bros. Mfg. Co., Philadelphia, Pa.

**DRILLS (Breast).**
North Bros. Mfg. Co., Philadelphia, Pa.

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Sheldons, Ltd., Galt, Ont.
Morton Dry Kiln Co., Chicago, Ill.

**DRY KILNS.**
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Sheldons, Ltd., Galt, Ont.
Morton Dry Kiln Company, Chicago, Ill.

**DUST COLLECTORS.**
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Sheldons, Ltd., Galt, Ont.

**DUST SEPARATORS.**
Canada Machinery Agency, Montreal.
Sheldons, Ltd., Galt, Ont.

**DYNAMOS.**
Canada Machinery Agency, Montreal.

**EDGERS (Gang).**
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Chicago Machinery Exchange.
Canada Machinery Agency, Montreal.
Simonds Canada Saw Co., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
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E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

**EDGERS (Single Saw).**
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
Simonds Canada Saw Co., Montreal.
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Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.

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Canada Machinery Corporation, Ltd., Galt, Ont.
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E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

**ENGINES (Steam).**
Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

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Canada Machinery Agency, Montreal.
Mussens, Ltd., Montreal.
Sheldons, Ltd., Galt, Ont.

**FLOORING MACHINES.**
Berlin Machine Works, Ltd., Hamilton.
Canada Machinery Agency, Montreal.
Chicago Machinery Exchange.
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Hespeler Machinery Co., Ltd., Hespeler.
Mussens, Ltd., Montreal.
Canada Machinery Corporation, Ltd., Galt, Ont.
Baxter D. Whitney & Son, Winchendon, Mass.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

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**FLUTING HEADS.**
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Canada Machinery Agency, Montreal.
Chicago Machinery Exchange.
J. A. Fay & Egan Co., Cincinatti, O.
C. Mattison Machine Works, Beliot, Wis.
Mussens, Ltd., Montreal.
Canada Machinery Corporation, Ltd., Galt, Ont.
H. W. Petrie Co., Ltd., Toronto.

**GAS ENGINES.**
Canada Machinery Agency, Montreal.
H. W. Petrie, Ltd., Toronto.

**GAUGES (Saw).**
Shurly Dietrich Co., Ltd., Galt, Ont.
Simonds Canada Saw Co., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

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Reynolds Machine Co., Moline, Ill.

**GLUE CLAMPS.**
Black Bros. Machinery Co., Mendota, Ill.
H. W. Petrie, Ltd., Toronto.

**GLUE HEATERS.**
J. A. Fay & Egan Co., Cincinnati, O.

**GLUE JOINTERS**
Canada Machinery Corporation, Ltd., Galt, Ont.
Canadian Linderman Co., Ltd.
Chicago Machinery Exchange.

**GLUE SPREADERS.**
Chicago Machinery Exchange.
J. A. Fay & Egan Co., Cincinnati, O.

**GRINDERS (Cutter).**
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Falls Machine Co., Sheboygan Falls, Wis.

**GRINDERS (Knife, etc.).**
Berlin Machine Works, Ltd., Hamilton, Ont.
Chicago Machinery Exchange.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
T. A. J. Burton Saw Co., Ltd., Vancouver, B.C.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

**GRINDERS (Tool).**
J. A. Fay & Egan Co., Cincinnati, O.
Valley City Machine Works, Grand Rapids, Mich.

**GROOVING HEADS.**
J. A. Fay & Egan Co., Cincinnati, O.
C. Mattison Machine Works, Beloit, Wis.
Samuel J. Shimer & Sons, Milton, Pa.
Canada Machinery Corporation, Ltd., Galt, Ont.

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Chicago Machinery Exchange.
J. A. Fay & Egan Co., Cincinnati, O.
Jones Safety Device Co., Hamilton, Ont.

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Black Bros. Machinery Co., Mendota, Ill.
J. A. Fay & Egan Co., Cincinnati, O.

**HEATING APPARATUS.**
Sheldons, Ltd., Galt, Ont.

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Canada Machinery Agency, Montreal.
Chicago Machinery Exchange.
J. A. Fay & Egan Co., Cincinnati, O.
J. M. Nash, Milwaukee, Wis.
Ober Mfg. Co., Cragrin Falls, O.
Baxter D. Whitney & Son, Winchendon, Mass.

**HUB MACHINERY.**
Canada Machinery Agency, Montreal.
Chicago Machinery Exchange.
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.

**INJECTORS.**
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
H. W. Petrie, Ltd., Toronto.

**JOINTERS.**
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Canadian Linderman Co., Ltd.
Chicago Machinery Exchange.
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

**KNIVES (Planers and Others).**
Shurly Dietrich Co., Ltd., Galt, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.
Samuel J. Shimer & Sons, Milton, Pa.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
H. W. Petrie, Ltd., Toronto.

**LACE LEATHER.**
Sadler & Haworth, Montreal.

**LAST MACHINERY.**
Canada Machinery Agency, Montreal.

**LATHES (Pattern Makers').**
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Canada Machinery Agency, Montreal.
Chicago Machinery Exchange.
J. A. Fay & Egan Co., Cincinnati, O.
Mussens, Ltd., Montreal.
Valley City Machine Works, Grand Rapids Mich.
H. W. Petrie, Ltd., Toronto.
Thos. White & Sons, Paisley, Scotland.

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Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Canada Machinery Agency, Montreal.
Chicago Machinery Exchange.
J. A. Fay & Egan Co., Cincinnati, O.
C. Mattison Machine Works, Beloit, Wis.
Mussens, Ltd., Montreal.
Ober Mfg. Co., Chagrin Falls, O.
Plessisville Foundry, Plessisville, Que.
Valley City Machine Works, Grand Rapids, Mich.
Baxter D. Whitney & Son, Winchendon, Mass.
H. W. Petrie, Ltd., Toronto.

**LOOSE PULLEYS.**
J. A. Fay & Egan Co., Cincinatti, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Plessisville Foundry, Plessisville, Que.

**LUBRICANTS AND GREASES.**
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

**LUMBER.**
Elgie & Jarvis, Toronto.

**MITRE MACHINES.**
Canada Machinery Corporation, Ltd., Galt, Ont.
Chicago Machinery Exchange.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

**MITRE SAWS.**
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E. C. Atkins & Co., Hamilton, Ont.
Chicago Machinery Exchange.
J. A. Fay & Egan Co., Cincinnati, O.
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Simonds Canada Saw Co., Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
E. & B. Holmes Machinery Co., Buffalo N.Y.
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**MITRE CLAMPS.**
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Jones & Glass Co., Montreal.
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**PATTERN SHOP MACHINES.**
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Chicago Machinery Exchange.
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Chicago Machinery Exchange.
Hespeler Machinery Co., Ltd., Hespeler Ont.

**PLANES.**
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Hespeler Machinery Co., Ltd., Hespeler Ont.
Mussens, Ltd., Montreal.

**PLANERS.**
Berlin Machine Works, Ltd., Hamilton Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Chicago Machinery Exchange.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Hespeler, Ont.
Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
Baxter D. Whitney & Son, Winchendon Mass.
E. & B. Holmes Machinery Co., Buffalo N.Y.
H. W. Petrie, Ltd., Toronto.

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Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
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Black Bros. Machinery Co., Mendota, Ill.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
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Wausau Quartz Co., Wausau.

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Chicago Machinery Exchange.
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Canada Machinery Corporation, Ltd., Galt, Ont.

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R. H. Smith Co., Ltd., St. Catharines, Ont.
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Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.

Mussens, Ltd., Montreal.
Plessisville Foundry, Plessisville, Que.
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Hespeler Machinery Co., Ltd., Hespeler, Ont.
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Chicago Machinery Exchange.
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Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Chicago Machinery Exchange.
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J. A. Fay & Egan Co., Cincinnati, O.
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Canada Machinery Corporation, Ltd., Galt, Ont.
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Mussens, Ltd., Montreal.
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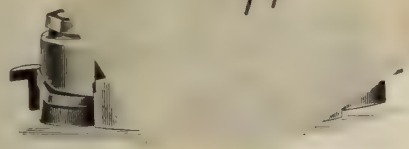

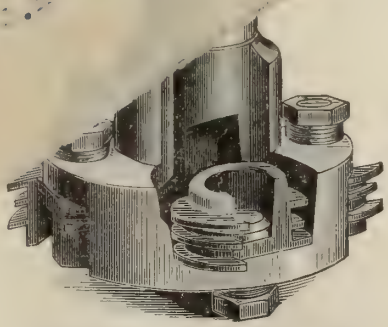

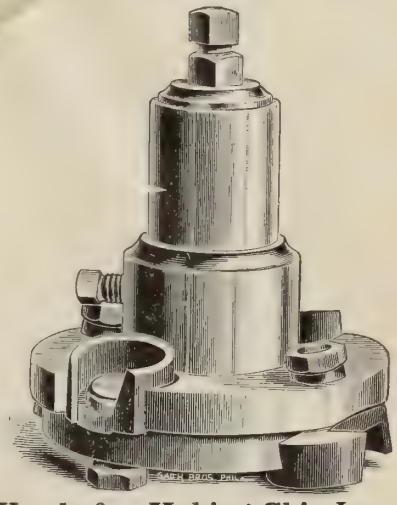

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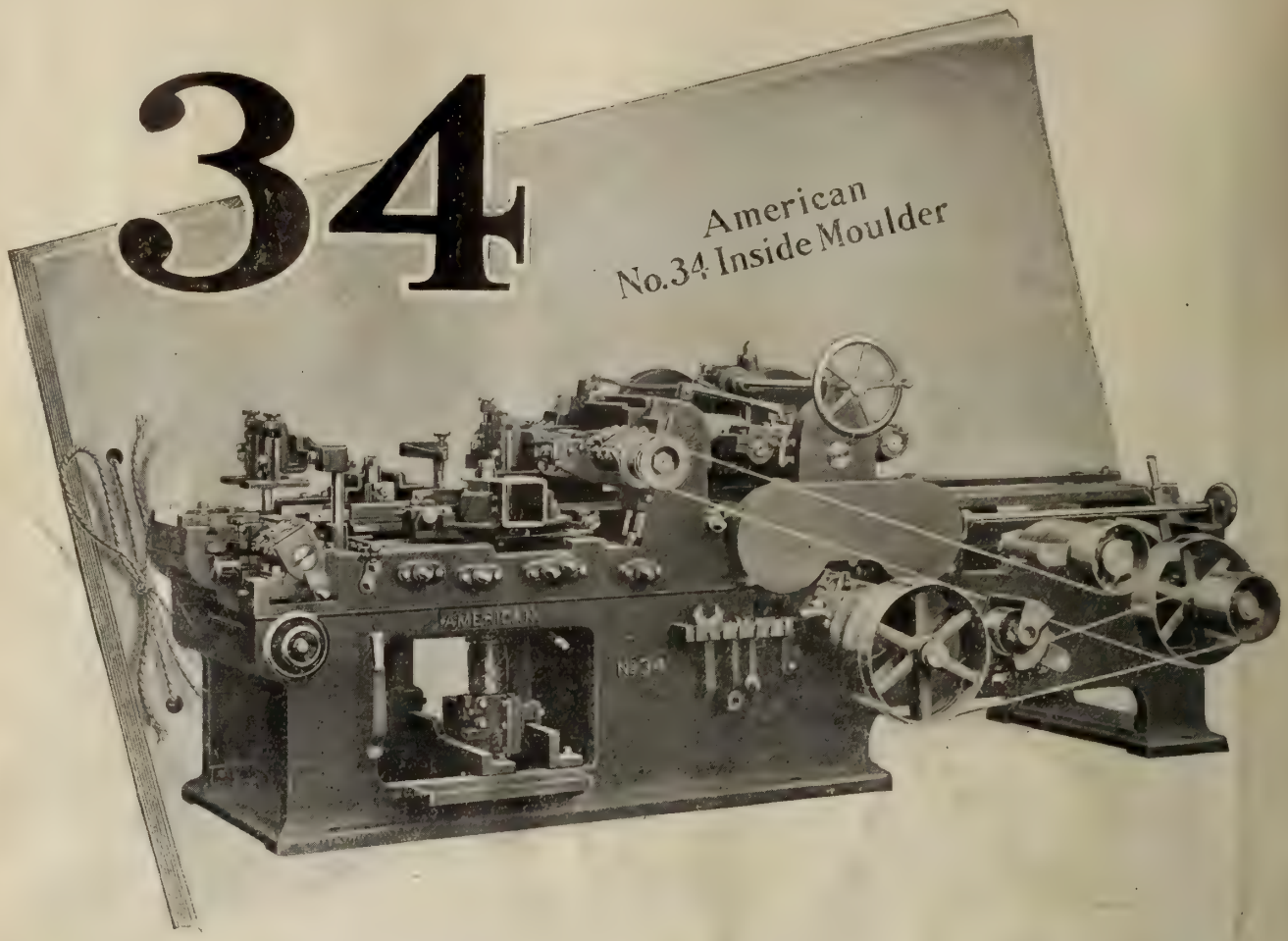


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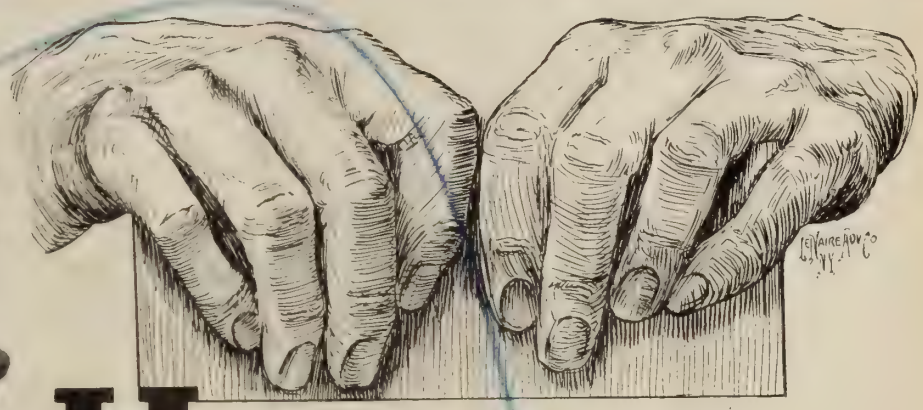

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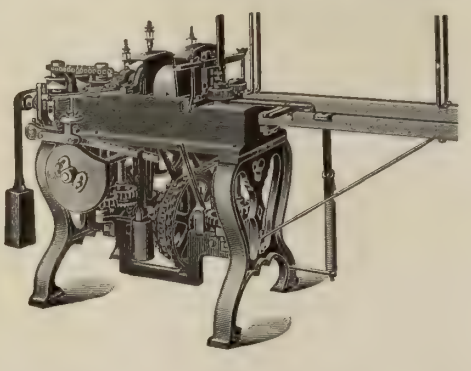

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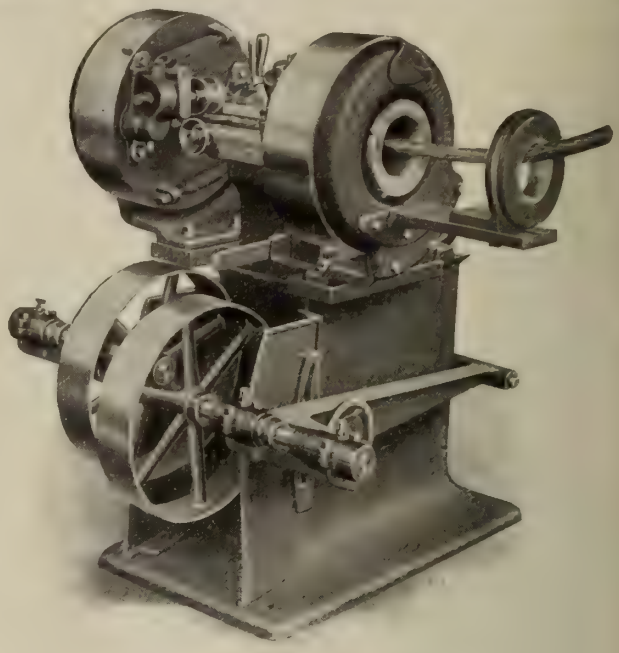

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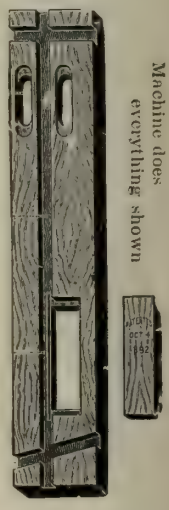


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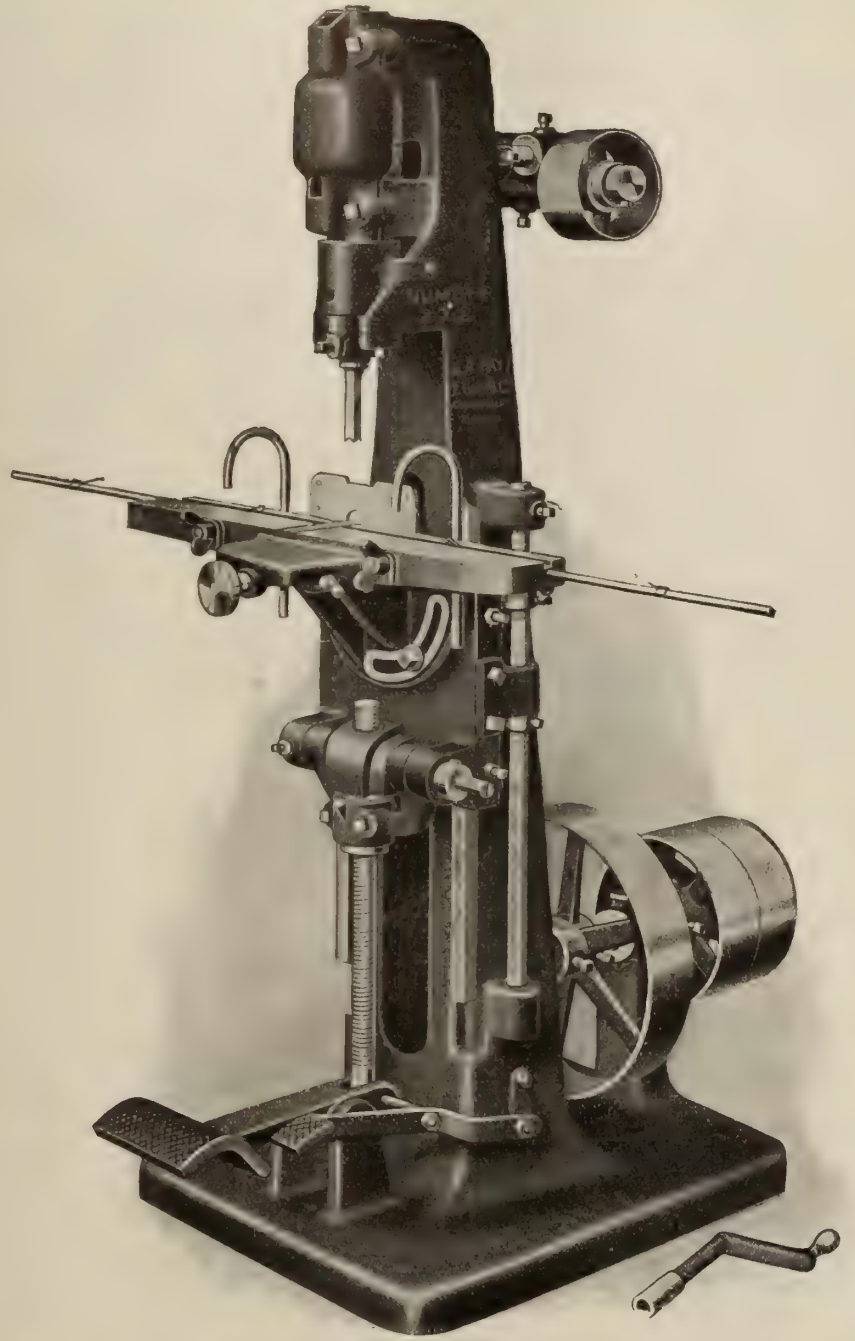

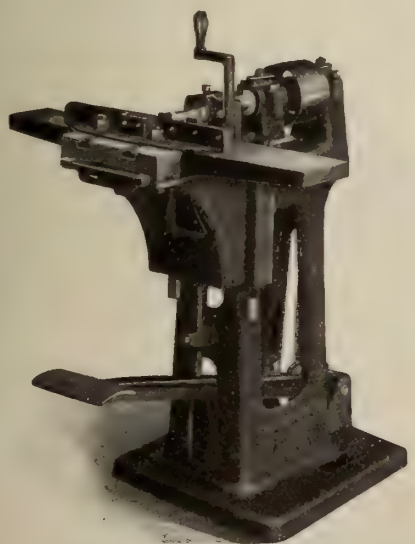

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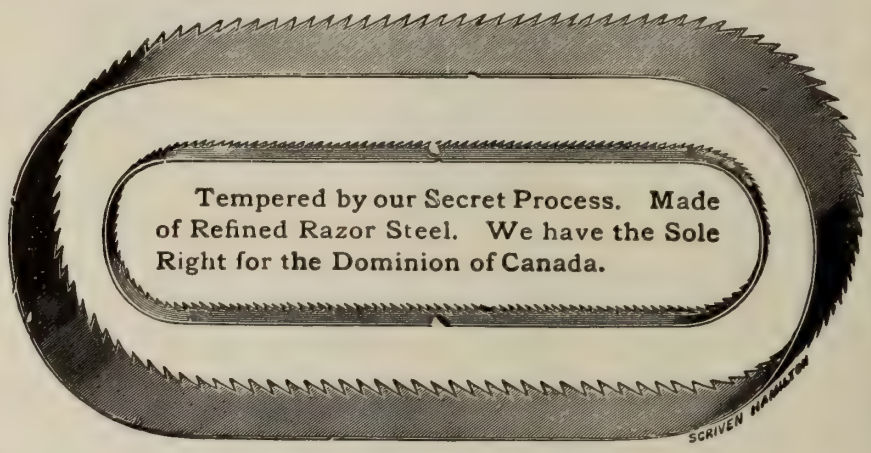


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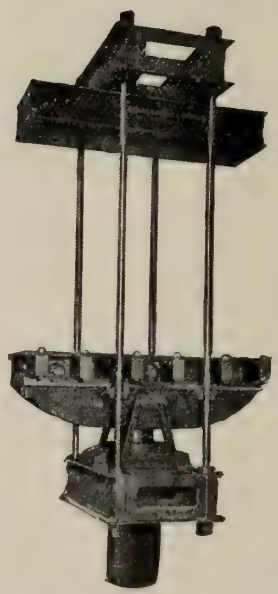

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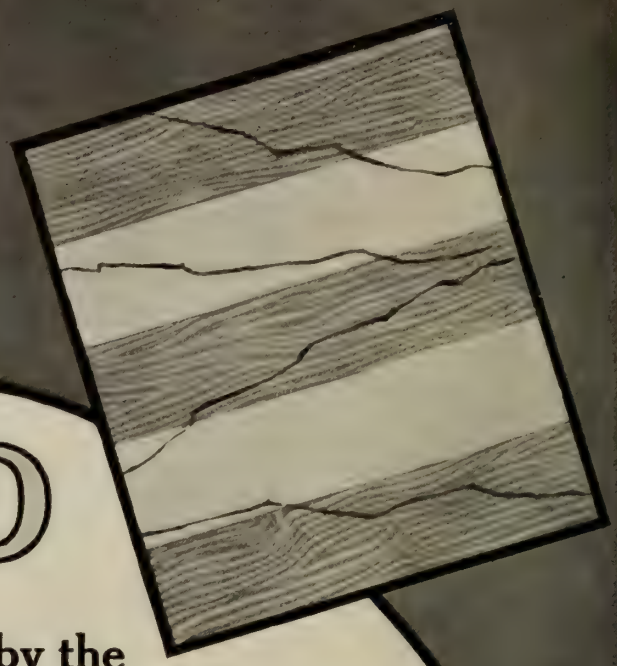

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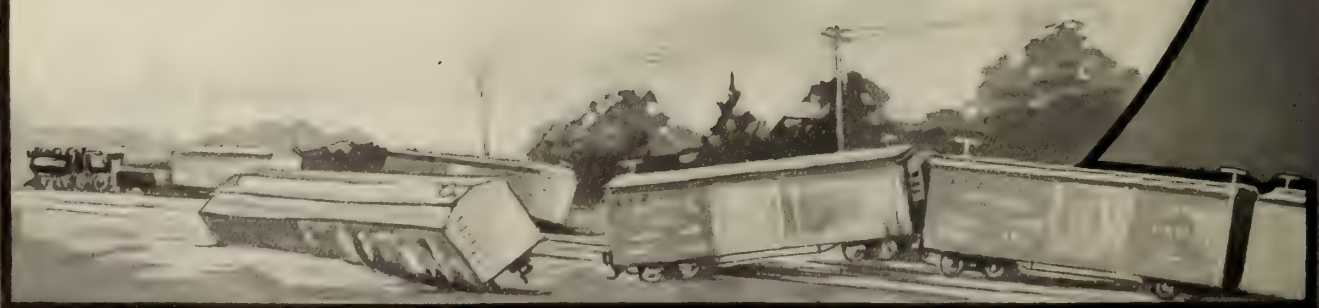

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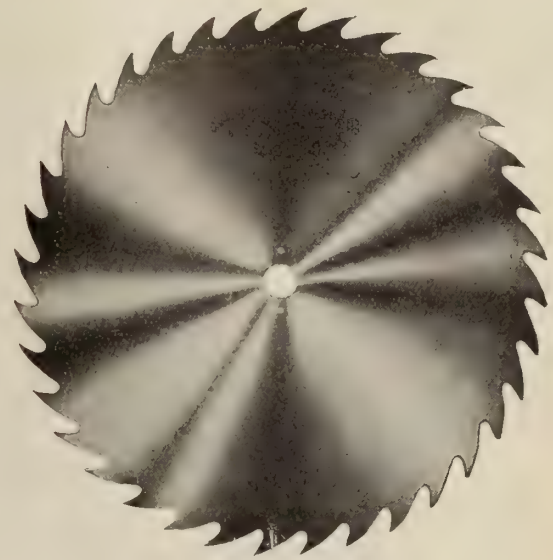

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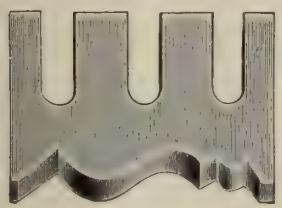

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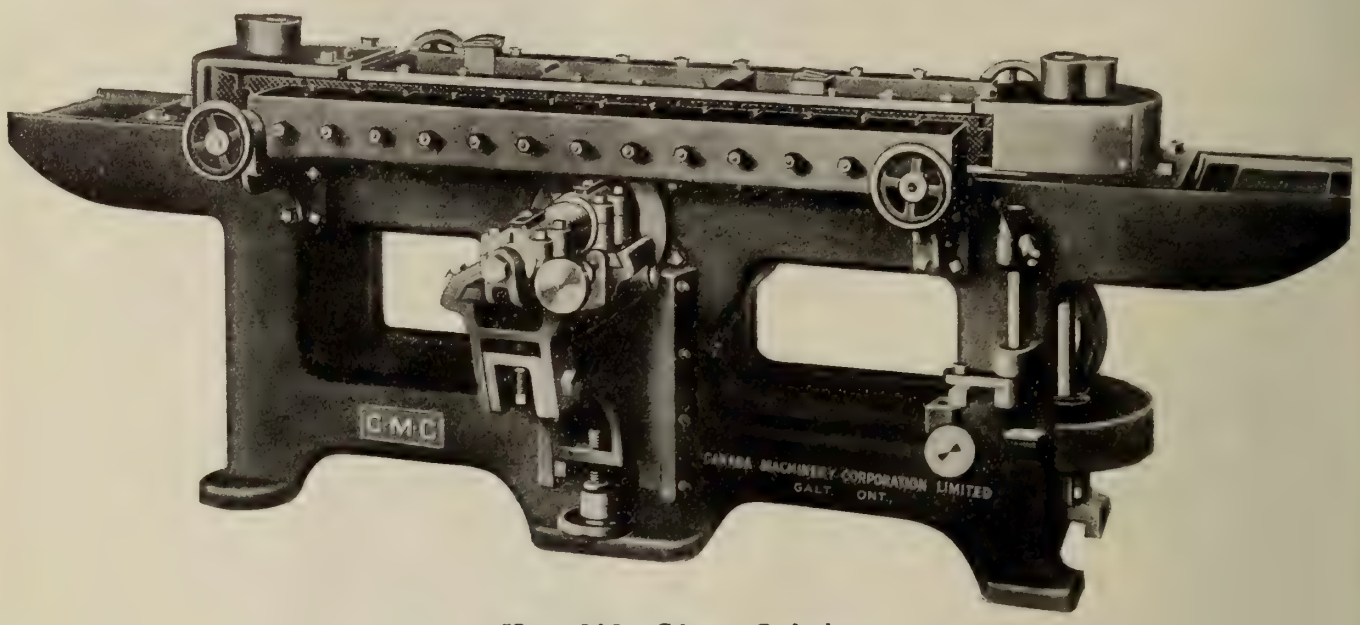


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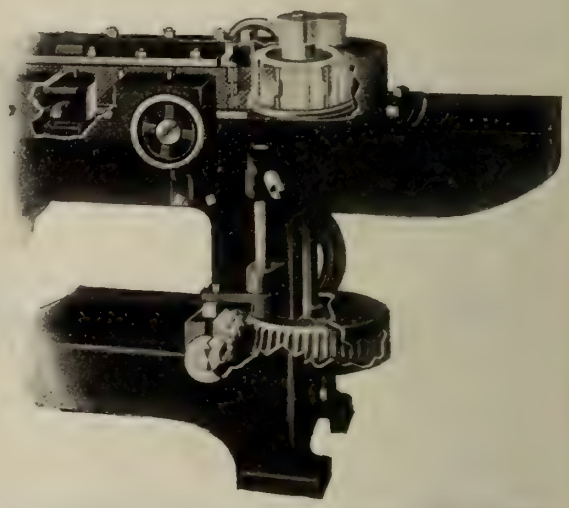

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Phone Main 5048
**111 Mail Building, Toronto, Canada**
United States: E. J. MACINTYRE, 4057 Perry St., Chicago.

SUBSCRIPTION RATE.

Canada, United States, $1.00; Great Britain, Australia 4s 6d.; other countries $1.50 per year. Advertising rates on request.

**Vol. 12** **August, 1912** **No. 2**


## Prosperous Canada

Canada to-day stands in an enviable position. On every hand there are signs of great prosperity. The number of building permits issued this year is simply enormous; and one of the notable facts in connection with this large amount of building now going on is that it is not confined to any particular section of the country, but is general.

Go where you will, turn which ever way you like, you will hear the tang of the saw and the sound of the hammer. There is no boom on—all these buildings are wanted—wanted to take care of Canada's constantly increasing population.

United States manufacturers who early in the year were seeking locations, have found them and are now engaged in the erection of their plants. Our own Canadian concerns are prospering and many of them have either already enlarged their plants or contemplate doing so as soon as they can catch up with the rush of work in hand.

The industrial outlook is indeed bright. There is plenty of money in the country which is being spent, and the woodworker, as already stated, is getting a fair share. All this building now going on and which is likely to continue for some time, means a big call for mill and carpenter work. Consider, too, the vast amount of furniture that will be required in the office and bank buildings, as well as in the houses, and in the majority of homes a musical instrument will be wanted. So that it can easily be seen that this is certainly the woodworker's busiest year in Canad's history.

Perhaps one of the most pleasing features to contemplate in connection with our present good times is the almost complete absence of labor troubles. This is to the credit of the men employed in the various branches of the trade. Of course there always is and always will be discontented ones in a great and growing country like ours, but just at present many men are getting more than the minimum rate of pay, and see no reason for disturbing present conditions in prosperous Canada.

## Publicity Through Trade Journals

"The most potent factor in our industrial and commercial development during the past generation has been the trade paper. It has rapidly increased in its importance in every field of endeavor. No other class of publications are read as thoroughly and earnestly as trade papers.

"The trade paper may be defined as a finely adjusted implement of twentieth century progress that automatically selects and attracts only the interested, and eliminates all others.

"Like other economic conveniences, specialized publications are unappreciated and discredited by some, but to the constituency which it seeks to aid it goes modestly and noiselessly and greets its readers with a radiance of intelligence because it is one of the handmaids of education. As a people we are looking for the best systems, for the most economical methods, and our progress as a nation is because of the fact that we have less conservatism, less routine in our way of doing things than have other nations.

"In the material world there are no accidents recognized. If we will but trace to their antecedent cause those things which we call results we will find a well-defined reason for everything. Success is won by application of substantial reason—not chance.

"The trade paper is the embodiment of all that is substantial, the foundation of that which is safe and secure. Its pages reflect that which has been tried and found true. Its influence cannot be overcome nor its power adequately estimated, for its force is always along the lines of least resistance."—Extract from Paper read by E. R. Shaw, before National Gas Engine Association.

## Better Protection for the Workers

As a result of the passage of compensation laws in many states, manufacturers and other employers of labor are coming to realize the importance of further protecting their workers. Every one knows it is impossible to fully compensate victims and their families for the suffering and possible fatal results of accidents, so the logical thing to do is to take every possible precaution in preventing accidents.

Some of the largest plants in the country have already given considerable attention to this subject, and the publicity given their plans will be beneficial to other employers. The adoption of more adequate methods of preventing accidents means a reduction in the rate of liability insurance.

In one large eastern plant where the system has been adopted, the rate of accidents per employee was reduced one-half in a year. This was accomplished by the employment of a safety engineer, whose sole duty is to devise means of safeguarding employees. Previous to that time the number of amputations necessary as the result of the old system was 3.7 per month, while under the new system the number was reduced to six amputations during the entire year, and all of these were amputations of fingers.

In addition to a reduction in the number of accidents, there was a saving to the plant's relief fund of approximately $9,000 as compared with previous years. The nature of the accidents was also much less serious.

While these results were to a certain extent due to the use of safety appliances, much more was accomplished by training the employees to work with safety under conditions that might become dangerous if the

worker were inexperienced. The men were also trained to look out for each other more than they had formerly done.

This was accomplished by separating the workmen into classes according to the rapidity with which they thought and acted. The places of greatest danger were given to the quick and alert, while work which involved less risk was assigned to slow moving and slow thinking men. When it was found that an employee was so slow as to be beyond hope of improvement he was let go. This was done on the theory that it would be unfair to himself, his fellow workers, and his employers to keep him in a position for which he was not fitted. If allowed to remain, there would always be the danger of injury either to himself or to others, and it was deemed better to force such employee to find safe work.

The Illinois law provides that the employer must safeguard workers at machines by adopting all known safety appliances and complying with every requirement of the factory inspection law. The penalty for not doing so is withdrawal of the common law defenses, and if he is in the class that operates under the compensation law the limit of liability provided by that law is removed. It has been the experience of all modern manufacturing plants that it pays to do everything possible to prevent accidents.

Most accidents are the result of unexpected dangers. Probably broken ladders and improperly placed ladders cause more accidents than anything else. It is easy to remedy such evils. This can be done by destroying all ladders that are weak or worn and by providing every ladder in the plant with safety prongs to prevent slipping.

## Canadians Have $100 Each

A juggler of figures has worked out this interesting information:

The total savings of the Canadian people, placed out at interest in the various institutions which take care of savings, and not including the active and current accounts in the banks, on whicm no interest is paid, or any form of permanent investment, amount to one hundred dollars per capita. This places Canadians in high rank among the most thrifty people of the world. The total figure of the savings deposited with the various banks, building societies and loan companies amount to $98.75 per capita. Private banks and trust funds will readily account for more than the remaining $1.25 per capita. The official figures, from government statistics for last year, are:

| | Amount | Per Capita |
|---|---|---|
| Chartered banks ... ... ... | $577,591,045 | $81.35 |
| Government savings bank.. | 14,486,593 | 2.04 |
| P. O. savings bank ... ... | 44,232,377 | 6.23 |
| Special savings bank ... .. | 37,204,390 | 5.24 |
| Building loan and trust .. | 25,421,628 | 3.89 |
| | $698,936,033 | $98.75 |

We don't know to whom credit is due for the following advice: A man owes it to himself to get practice to-day for the duties of to-morrow. The world owes every man a living, but it does not pay in advance; but it pays, sooner or later, for all that every man does, and if an employer is to-day stingy and unappreciative (and there are such), the employer of to-morrow will square the account. It's a good thing to learn when to change employers.

## Opportunities for Foreign Trade

The following enquiries have been received from England and other countries relating to Canadian trade. The names of the firms and their addresses can be secured by interested parties by writing to the Enquiries Department, Canadian Woodworker.

Any of our readers who are answering the enquiries should not fail to forward references—particularly if bankers references.

142. **Ash wood.**—A French firm in Paris asks for veneering ash wood known as "Figured Canadian Ash" (rotary cut or round cut).

143. **Birch wood.**—A London firm makes inquiry for the names of Canadian exporters of Canadian birch wood ready cut up for use in the manufacture of hammock chairs, etc.

144. **Dowels.**—A London firm is open to purchase upon a cash basis supplies of best white beech dowels, cut to specification, and invites quotations from Canadian manufacturers. They are also buyers of maple mangle rollers.

145. **Timber.**—A Nottingham firm is open to accept an agency for the sale of Canadian pine, spruce, pine sidings and doors.

146. **Furniture.**—A French corporation wishes to be put in touch with Canadian manufacturers of furniture and fittings for steamers and steamboats.

147. **Pine and spruce lumber.**—An old-fashioned and strong firm of importers in Brazil desires to be placed in touch with exporters of pine and spruce lumber. Quote prices c.i.f. Rio de Janeiro.

148. **Leather and balata belting.**—An old-established and financially strong importing house in Brazil desires to enter into communication with manufacturers of leather and balata belting. Quote prices c.i.f. Rio de Janeiro.

## Railroad Tie Scarcity in Australia

The Works Department of the State of New South Wales recently called for a supply of roalroad ties to be used in connection with an extension of the line from Wagga to Tumbarumba, this state. Over 70,000 ties were required, and despite the fact that the needs of the Works Department were duly advertised, no one has as yet made the offer to supply them.

It would thus appear that the local supplies of hardwood are being steadily reduced; for hundreds of thousands of hardwood ties have been and are still being exported from this state to the other states of the Commonwealth as well as oversea, and it is now becoming a serious question as to where the supplies required for local consumption will have to be drawn from. Assuredly there is still a fair supply of growing timber suitable for this purpose, but it is only a matter of time when, unless the greatest care be taken of reforestration, it will be necessary for the Works Department, and also the Railroad Department to purchase their requirements from districts beyond the state borders. This condition of affairs is peculiarly interesting in view of the fact that the railroad lines of the state are controlled and operated by the state government and not by private companies or corporations.

If you can't take pride in your work or turn out work that you are proud of, you are either one of those square pegs in a round table, or else you are neglecting opportunities to take more interest in work.

## Market for Tool Handles

In the Sheffield district where the manufacture of hardware is so largely carried on, there is an active demand for wooden tool handles and a few particulars in regard to this trade should be of value to Canadian manufacturers.

For many years, makers in the United States have paid close attention to this market and the experience thus gained enables some firms to do business successfully, but, on the other hand, others have failed owing to their inability to study the requirements of buyers.

In inquiring into the prospects for Canadian manufacturers, one firm who probably use more hickory pick handles than any firm in England, express their readiness to give preference to supplies from Canada providing quality and price compare favorably with present sources of supply. Other firms are willing to furnish this office with samples and any further particulars which would be the means of enabling Canadian makers to enter this trade successfully.

### Kinds of Pick Handlts Used

The pick handles used are made of hickory or ash although there would appear to be a general preference for hickory. Some time ago handles made of maple were tried, but were found to be unsatisfactory as they were not strong enough for the purpose.

The handles required are used for three classes of picks well known in the hardware trade, and the lengths for these respective picks are 32, 30 and 36 inches.

Pick handles are sold to the trade in four grades and for purposes of comparison, these grades may be classified as follows:

| Grade | Remarks |
|---|---|
| "Extra" | All white. |
| "No. 1" | Nearly all white. |
| "No. 2" | Picked red and white. |
| "C. or A" | Red and white but of an inferior quality to No. 2. |

### Other Handles Inquired For

A further demand is for spade and shovel handles made of ash in the usual 'D' and 'T' shapes, the former measuring 30 and 32 inches and the latter 28 inches in length.

In regard to hammer handles, it may be stated that the smaller sized are now made in Sheffield and only the larger lengths in hickory or ash are imported.

Among other kinds of tool handles for which there is more or less demand may be mentioned, hay-fork handles of ash in lengths ranging from four feet. There is also a certain demand for handles for manure and digging forks measuring from 4 to 4½ feet long. Purchases are also made occasionally of rake handles in lengths from 4 feet upwards.

## The Meaning of Conservation

Conservation does not mean forbidding access to resources that could be made available for present use. It means the freest and largest development of them consistent with the public interest and without waste. A bag of gold buried in the earth is useless for any purpose. So is an acre untilled, a mine unopened, a forest that bars the way to homes and human happiness.

## Forestry Society for Southwestern Sweden

As is well known, Sweden occupies a very leading place among timber-supplying countries, and the greater portion of its soil is extremely suitable for the growing of such wood as has earned for Sweden a well-merited reputation. Of late years the calls upon the standing forests of Sweden have been heavy, and certain well-known exporters and landowners in the southwestern part of Sweden have now formed a society having for its object the planting of some 2,000,000 acres of heather covered boggy or otherwise unproductive land with the red and white woods of commerce. A public meeting of the many persons interested was held at Gothenburg recently, and the sum of 70,000 kroner—nearly £4,000—was subscribed, to start operations with, with the promise of much more to come.

The country districts to be operated on include Gothenburg, Bohns, Halland, Alfsborg, Kronoberg, and Jonkoping, and so soon as some of the boggy lands have been drained, and the moors made ready for planting, seedlings will be put in, and gradually an asset of great potential value will be created, which, in the course of half a century, will yield a very considerable revenue.

Some state assistance will probably be necessary, and will probably be readily given. In the meantime, the funds collected, and those which will flow in steadily, will be in the safe hands of Mr. A. Edwin Ohlsson, who has been elected treasurer of the society, and, in addition to this work, will, no doubt, lend most willingly such valuable aid as his great experience of forestry renders possible. Mr. Ohlsson is well known in England as the head of the Tingstad and Ramen-Liljendahl Companies, and one of the leading men in the Delarne Company, of Gothenburg.

## Artists in Workhouse

One of the greatest wastes of society, it is well recognized, is the British workhouse, with its able-bodied inmates employed for the most part unprofitably on routine drudgery. An example of the talent thus thrown away is afforded by a beautifully carved baptismal font, the work of two inmates, which has just been set up in the Lewisham workhouse chapel.

The font is of white Portland stone, with a centre column of red Mansfield, and it has a cover of carved oak with eight decorated paddles. The stonework was executed by Louis W. Houldsworth, a man 57 years. He is described as a skilled ecclesiastical stone worker. He is now unable to obtain work on account of his age.

The oak carving and joinery were by Henry Armfield, a man of 75 years, who, being partly a cripple, has been in the workhouse for a long time.

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It is a peculiar fact that while in this country we have shown a tendency of late years to use concrete and tiling instead of wood flooring, over in Italy, where cement and marble tiling have held sway for many years, they are now inclined to use more wooden flooring. The favor shown wooden flooring abroad is not influenced by the ideas of economy and first cost, but by virtue of the fact that wood makes a more desirable floor to stand on. This idea should be worth something to the promoters of hardwood flooring in this country.

# General Construction

Fig. 1 shows a Cement Concrete Wall at A with a footing at B. The wall rests against the earth F from m to d, but in order to build the wall straight and plumb, you must build a form to hold the concrete until after it sets, then the form can be removed.

Posts are set up as at E, generally of 4 x 4 in. or 4 x 6 in., braced and staked as at D, c and e, a block is nailed on as at g to hold the brace in place and stakes driven at c. The plank c can then be put in as the wall goes up. Sometimes wires are tied across from one timber to another, as at b, to help keep the timbers from spreading; a board as at a can be nailed on the top or side of the posts to keep them in place. At d shows the grade line, the wall above grade is sometimes plastered and marked off to represent stone work. Sometimes hollow cement blocks are used for the work above grade and sometimes the whol wall is built from hollow blocks, ornamental face above grade and plain below.

Fig. 2 shows Cement Foundation as at A with a wood floor E. The concrete A is put in and leveled off, then strips as shown at C or D are laid on the concrete and filled in between the strips with cement concrete. The wood floor is then nailed on top of the wood strips. The strips are sometimes 1¾ in. thick and beveled on each side as at C and sometimes they are 4 x 4 in. strips beveled. Sometimes 2 x 4 in. are taken and spikes driven in as at D, the spikes will hold the 2 x 4 in. in place after the concrete is in place and set. Tar felt paper should be laid between the floor and the concrete.

Fig. 3 shows a Cement Concrete Walk or door over an area way or opening. The walk is reinforced with I-beams as at B. A temporary floor as at D must be put up to hold the concrete in place until it sets sufficiently to hold itself. Sometimes the concrete is reinforced with wire netting, as from a to b; when concrete is reinforced with wire netting the I-beams can be put farther apart than if there were no netting. The spacing of the I-beams must be according to the width of the opening.

Fig. 4 shows a Retaining Wall A made of cement concrete and a footing B. The wall is 12 feet in depth and the size as shown with two offsets of 6 inches each, leaving the wall only 12 inches at the top, the wall has a batter or slant of 12 inches.

Fig. 5 shows the Construction of a Form or Center, to build an arch over an opening where there is no frame used. The plang A-B must be cut to the desired opening, c is a cross piece to keep the boards A-B from spreading. Make two of the side pieces as A-B and nail lagging pieces as at E-F; these cross pieces can be set about 2 inches apart for brick work and 3 or 4 for stone work. When the wall is of concrete the top must be solid. H, I, J, G are posts to hold up the centre until after the mason work is set sufficient to remove them.

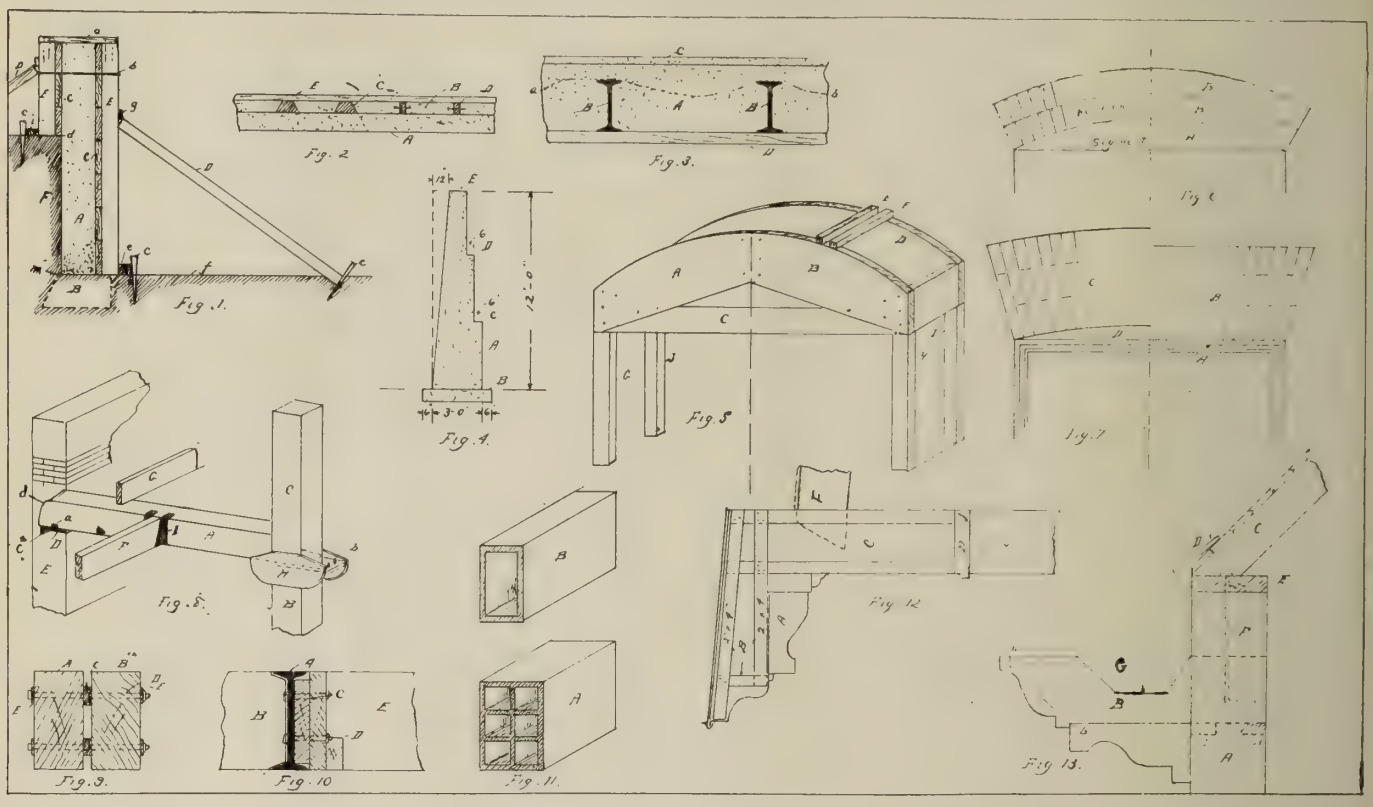


Fig. 6 at A shows a Segment Arch ocer which the brick row-locks B-B are laid. In common brick work two and three row-locks are generally laid. The segment A is nailed on top of the frame.

Fig. 7 shows two Forms of Brick Arches over openings. The arch at B you will notice is on a straight line at the top and bottom; the brick in an arch of this kind must be ground to fit the arch, or else the joint at the top of the arch would be about twice as large as at the bottom. Sometimes a small segment is put on top of the frames at at D, then the brick can be laid without grinding the brick down; the joints will be some larger at the top but not enough to be noticed if the arch is not more than 12 inches in height.

Fig. 8 shows a part of a Mill Construction Building. One end of the girder A rests on the post cap

H and the other end in the brick wall E on the iron plate D. You will notice the end of the plate being turned down at C to help keep the plate in place on the wall; the projection on top of the plate at a prevents the timber from pulling out straight from the wall, but if the timber should break in the centre, the back end of the timber in the wall would rise up high enough to get out of the notch and fall out without disturbing the wall E, the top of the girder being rounded as shown at d. The joists or girders as at F between the bearing girders are sometimes hung with joist hangers as at I, and sometimes they are laid on top of the main girders as at G. There are several different kinds of patented post caps; the one shown in the drawing gives very good satisfaction. Some of the caps are made of cast iron and some of pressed steel. The caps are set on top of the lower column and the upper column or post sets on top directly over the lower post. The girder A rests on one end of the caps. Pin as at b hold the girder from getting away from the post and keeps the building in place. The girder A never should rest on top of the post where there is another post to be set on top for another storey, as the post would have to set on top of the girder and the shrinkage of the timber would make a settlement where the posts are. In mill construction the floor joists are generally heavy and from 2 to 4 feet apart, then a heavy floor is laid of 3 or 4-inch lumber and the finished floor on top of the heavy floor with asbestos paper between them. Sometimes a one-inch coat of cement is put between the floors.

Fig. 9 shows a girder made of two timbers bolted together. The timbers A and B are of different sizes according to the weight that they are required to carry, the washer C should be about one inch, the dotted lines D represent the bolts and E a washer at the end of the bolts; the bolts should be about three feet apart. A girder made in this way is stronger than if only one timber is used, unless the timber is perfectly sound.

Fig. 10 at A shows an I-beam; on the one side as at C two timbers are bolted to the I-beam and a 2 x 4 as at D is spiked to the timber; the joists are then cut and spiked to the girder as at E. Sometimes the joists are cut to fit the I-beam as at B when the joists are put in; in this way strap anchors must be put over the joist to keep them in place, one every fourth joist. If the floor is double, it is well to lay the under or first floor diagonal which will also tie the joist together.

Fig. 11 A and B show hollow tiling which are used quite extensively for partitions and backing up in brick buildings. They are better for backing up than brick as the hollow part prevents the frost from coming on the inside.

Fig. 12 shows a Metal Cornice and wood frame work to hold the same in place. C and E show the brick work, D and B the wood frame which is built into the brick work, F the roof joist.

Fig. 13 shows a projection of a cornice, G being the gutter, A the brick wall, B a wood bracket to which the cornice is fastened, the wood bracket is fastened to the 2 x 4's c-d. The plate on top of the brick wall is bolted to the wall with bolts F, and should have a bolt every four feet, C shows the rafter and D the shingles.

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Proper belt dressing is a good thing that it is mighty easy to get too much of, which means that there is a common practice of using more of it than necessary for the best results.

### Merits of Hardwood Floors

The increasing popularity of hardwood floors in residences has been one of the interesting developments of the past decade. Until a few years ago it was considred sufficient for the reception hall and parlor to be floored with hardwood, but the residence-owner of to-day usually demands that his entire house be treated in this manner.

The great beauty of hardwood flooring is one of the reasons for the favor accorded it, but the fact that it is more permanentt having little depreciation; that it enables the floors to be easily cleaned and thus are more sanitary, and finally, because a house with hardwood floors is more readily saleable than any other, the owner finds it advantageous to have them if they can possibly be afforded.

The fact that hardwood floors are an asset in favor of the sale of a house has caused many builders who build residences for immediate sale to put in hardwood floors, even if a sacrifice has to be made in some other part of the house. The real estate dealer who has homes for sale makes the fact that hardwood floors are to be found throughout prominent in his advertising.

There are, of course, hardwood floors and hardwood floors. The great demand for work of this kind has resulted in some rather hasty attempts to put jobs through, and now and then dissatisfaction has been the result. The work of putting down a hardwood floor is a task calling for competent labor, and even in the case of ordinary tongue-and-groove stock, which does not require the same expertness as that demanded of parquetry, the actual laying should not be relegated to the inexperienced workman.

Beginning at the beginning—the mill—hardwood flooring is made of white oak, red oak, maple and some other woods, though these are the leaders. Quartered red oak has a color that many people prize above that of white oak, and consequently much of it is put down. Maple has a fine, even grain, light color and is well adapted to flooring.

Inasmuch as flooring is comparatively thin, ranging from 5/16 to 13/16 in. in thickness, it is particularly susceptible to changes in the temperature and humidity. From the time that it is turned out of the mill until it is laid down, therefore, it should be carefully handled and exposed to as little variation in these connections as possible. In fine work, such as parquetry jobs, many manufacturers of flooring make and ship the material just before it is to be used, in order not to allow the squares to have an opportunity to absorb moisture or otherwise deteriorate.

If the builder or hardwood flooring contractor carries much stock on hand, it should be kept in a compartment which is well closed and which, preferably, should be heated. In this way there will be no chance for flooring which has been purchased at a stiff price to come out of the warerooms anything but fit for service. In the case of special designs, which have to be manufactured to specification, there is, of course, no occasion for the use of heated storage-rooms, since this work is put into the job as soon as it is received from the mill.

If the flooring is laid over a base of inferior wood, as is usually the case, it is absolutely essential that this be thoroughly dry. In order to insure the absence of moisture, it is desirable that the stock be kiln-dried, and before the flooring is laid down the contractor, if he has not had charge of putting in the

sub-floor, should make sure of his ground in this respect. If this is not done, the chances are that the floor will prove defective, and in that case a lot of explanations, which will not explain as far as the house owner is concerned, will be in order.

Some time ago a flooring expert was called upto to lay down a large hardwood floor in what was to be the ballroom of a handsome residence. He made an examination of the sub-floor, and found that it contained excessive moisture, not having been thoroughly dried. He explained this to the owners of the property, and pointed out that in order to secure good results it would be necessary to heat the room and allow the floor to dry for several weeks. The owners did not believe this to be practicable, and therefore ordered the work to be done immediatelv. It was laid with the understanding that the contractor did not assume responsibility for its permanent stability.

The ill effects of the moist underpinning were not evident immediately, but about six months after that they were easily apparent. The floor cracked in many places, and in some places sagged and in others buckled, reproducing the effect of the green flooring beneath. The surface, instead of being the beautiful, uniform expanse of brilliant hardwood that it was originally, was decidedly unattractive. The owner of the residence lost no time in informing the contractor that his prediction had come true, and authorized him to tear out the entire floor, sub-structure and all, and put in material that he could guarantee to do the work.

Similar results when flooring is laid over concrete without proper protection. In a good many business buildings, even those which are comparatively small, it is getting to be customary to have the floors laid of some fireproof material, and this is frequently of cement construction. The concrete is, of course, put down wet, and while it sets after the crystallization process takes effect, it does not lose all of its moisture immediately, by any means. It is therefore evident that to put down a piece of thin hardwood flooring over this mass of moist stone, which is what the concrete really is, is to expose it to the most unfavorable conditions imaginable.

### Getting Quick Results

Sometimes an effort is made to get quick results by laying strips, upon which the hardwood floor is to rest, in the concrete at the time it sets. This is unsatisfactory, since the strips themselves will feel the effect of the moisture, and the flooring that is nailed down over them will ultimately get the benefit of it as well. It is the best, and in fact the only safe, plan, when concrete is used, to permit it to dry for several months before the flooring is laid. If this is impossible the concrete should be waterproofed, and several strips of waterproof paper laid between the concrete and the wood above. A substructure of pine or other less expensive material should always be laid, so as to enable the surface structure to have a dry, firm foundation.

Occasionally where a hurry-up job is being put through, the hardwood flooring men are told to get busy when the building is not completely enclosed. This is a most hazardous undertaking, and to lay flooring in cold weather with doors and windows still open is running a risk that a careful workman doesn't like to take. Most flooring contractors find it advantageous to have charcoal heaters put in and to warm the rooms in which flooring is to be put down with the idea of making assurance doubly sure. They arrange so that they are the last contractors in the building, and so that the structure can be closed as tight as the proverbial drum. In this way they eliminate practically every chance of faulty work, and insure satisfaction to the owner, to themselves and to the flooring manufacturer who turned out the material.

### Make Use of a Sub-Floor

Even when 13/16 in. stock is used in a residence where there is no concrete work, it is good policy to put the hardwood down over a sub-floor. It has gotten to be a common occurrence to see flooring of this type nailed down directly on the joists, without any supporting foundation. While this is not fatal in that it will cause the work to turn out badly, it is objectionable from other standpoints, and is not recommended. Greater permanence is assured by having a foundation structure, and as the cost of the latter is not great, this can usually be arranged for without increasing the expense of the floor to any considerable extent.

Finishing a hardwood floor, especially where there is a great deal of parquetry, is one of the hardest parts of the job. One reason for this is that practically all other interior trim comes to the carpenter finished and sandpapered and ready to be fixed in its place. Formerly nearly all of the cabinet work required scraping and finishing by the carpenter, but with the improvement in the methods of the manufacturers, all of this, with the exception of flooring, is now done at the mill. Owing to the fact that it is impossible to anticipate conditions under which the work is to be laid, it is best to have the flooring scraped after it is put down.

This puts it up to the carpenter to attend to that job, although, as one flooring expert said, there are a large number of otherwise excellent workmen who not only don't know how to scrape a hardwood floor, but don't know how to sharpen a scraper. Without attempting to go into details regarding this feature of the work, it may be stated that the floor should be scraped with the grain, and that uniformity in the finish is the attribute which must be secured.

While the work of the hardwood flooring man is complete, as far as his immediate responsibilities are concerned, after he has laid down the floor and scraped it until the proper finish has been secured, it is good policy to carry the work a bit further, so as to include instructions to the owner of the property, if he is to occupy it as a residence, or the tenant who comes after.

The care of hardwood floors is an art which many people know itttle about, but fortunately there is getting to be a rather extensive literature on the subject. The proper use of wax and varnish, and the treatment of the floors after the first coat has been applied, are all topics which can be legitimately dealt with by the flooring man, for by explaining to the "ultimate consumer" the various problems to be met with in the use of hardwood floors, better appreciation of the work done and greater insurance of permanent satisfaction are attained.—C. D. Crain, Jr.

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### A Furniture Polish

Beeswax and turpentine is a capital polish for furniture which is not French polished. To make it, shred half an ounce of beeswax very fine and add to it a quarter of a pint of spirits of turpentine. Stir well and put aside until the next day. Then stir again and let it stand for another day, when it will be ready for use. Never melt beeswax and turpentine over a hot fire, as it is highly inflammable.

# Woodworking Machinery and Practice

**An English Woodworker's Idea of What a Modern Moulder Should be Like**

This is one of the most important machines used in the working of timber for roofs, spouts, floors, matchboards, etc., of which there are several types and sizes, but of course, all on the same principle. In the course of this article I shall confine myself to one size only, viz., 5 x 12 in., as being capable of a large output, and working at the fastest feeds. To accomplish this it is necessary that the machine should be built in a scientific manner, with plenty of metal in the proper place, to withstand the vibration and strains when under its greatest loads. This size of machine should be provided with eight large, heavy, powerful feed rollers, all of which are driven with machine-cut teeth, thus ensuring the board being fed continuously past the cutters without any slip. Both sets of feed rollers should be driven by two distinct sets of gears connected by a belt; this would do away with a great amount of noise and vibration that exists with the large train of gear wheels in use, and reduce the risk of breakage to nil.

The four top feed rollers made to rise or fall simultaneously to suit the different thicknesses by turning a handle in front of the machine, the four bottom rollers to be made adjustable vertically to allow for wear. One bottom cutter-block, fixed in cast-iron drawer, which can be drawn out clear of the main framing when it is required to sharpen, change, or adjust the cutters; this drawer to have a vertical adjustment to regulate the depth of cut without stopping the feed. This I consider quite sufficient for all purposes, if the drawer and underneath side of bed of machine is constructed with plenty of clearance, so that bead, rebate, or skirting irons can be used.

It is or should be supplied with two loose plates, which are let into the bed one at each side, to form the mouth or opening for the cutter to revolve through. These are made by several makers to go partly underneath the fence and fastened down by two countersunk studs. This is a great drawback to their use, and entirely does away with their utility; they are no better than the old-fashioned solid bed, and not worth their cost. No machine man will keep moving his fence unless compelled to get these plates out, and put in narrow ones, so that door casing, skirtings, etc., can be done at one operation. When this has to be resorted to it takes all the support from that part of the board which is not moulded, and is one of the prime causes of tearing pieces out on the face side, and thus spoils the work. I could easily overcome this difficulty at very little extra cost over the present clumsy arrangement.

What is wanted is two pairs of plates, to be made adjustable towards each other without interfering with any other part of the machine, one plain pair for straight work that can be brought close up to the cutting edge of the chipper to act as a chip breaker and form a solid bed to support the wood to be operated upon, the other pair to be made with an opening the required depth and width for the bead, rebate, or mould irons to protrude through the required depth of moulding, etc. This pair would then form a chip breaker throughout the whole outline of the moulding, and prevent the tearing out, as at present. These could be locked in position by a very simple arrangement at the side nearest to the operator, and to alter or remove them would only be the work of one minute.

The pressure as applied over the bottom chippers, viz., two solid pressure rollers, the width of the widest board the machine is supposed to take in, connected at both ends to a hollow casting with an open slot throughout its length, with pin passing through the centre at right angles; and also through lever fixed at one end passing along the slot in above casting, and free at the other, to which weights are added—this is in many cases useless and crude, with no other attribute, except that it is cheap and nasty. The fixed lever may have three or more holes through it, so that the rollers can be moved beyond the fence a little, to suit narrow boards, so long as they are thicker than the fence. However, 90 per cent. of the work done on this machine in most mills is ½ in., ¾ in. and 1 x 5 in. and 6 in. stuff. With these the rollers have more weight or metal hanging free from the board, or, in other words, the pin from which these rollers hang is beyond the outside edge of the board, therefore all the pressure is exerted on one edge, the other remaining free. To obviate this you must lower the fixed end of the board, and then lock it, when its utility is destroyed; the pressure then comes first on one part of the board and then on the other, according to the thickness and shape of each board, and never where it should be, viz., equally all over the board, irrespective of its width.

My opinion is that the bottom chippers, when in use, regulate the feed speeds at which the boards can be fed more than anything else, and certainly call for improvement as indicated above. I have an important reason for advocating one bottom cutter-head. This I found out by experience, when beading boards, sticking moulds on skirting, and rebating casings, with bottom head placed at the far end of the machine. The irons when meeting the wood against the grain left long hairs standing up the whole length of the board, on the quirk or finishing edge of the mould. This requires planing or rubbing off with sandpaper, and means a lot of extra labor, which can be avoided by fastening bead irons, etc., on the head in front of fixed plane irons. Again, the second bottom head is crowded right close up to the board, so that the holding down bolts passing through the cutters have very thin nuts, and then the corners taken off to make them clear the wood. This leaves very little room for the operator to put his fingers to set the irons, impedes his sight, and—last, but not least—the irons are so short they are worn out when you commence to use them. The pressure over the plane box, with separate weight and lever to each pair of runners, is all that can be desired.

The question of two or three fixed knives is, I believe, superfluous. My own experience is in favor of two only. It seems to turn principally on one's method of working the machine. The advocates of the three knives saw that it is possible to work the first knife twice as long as the finishing one. The method adopted in working the three knives is to grind, set and fix them in the plane box, put the box in the machine, and go on using two irons at one time only. As soon as they are blunt they drop the second iron and raise the third, which has been idle, and thus they claim to be able to run the machine twice as long as if only two knives were used. To do this it would be necessary to set the back iron further from the edge, which means a thicker first shaving than is

necessary to do the work. After an hour's run on wet or common white boards, the first iron might refuse to plane, the board simply riding over the top. No man can shave anything without a keen edge on his razor or cutter.

A few years ago I went to work in a new mill with all new tools by one of the leading makers. There were two of their latest planers, with two plane irons only in each box. My fellow workman used to put in his box with two freshly sharpened plane irons, and run the machine until they were blunt, then draw out that box and put in another with two sharp knives, and so on. The method I adopted was to put in a box with two sharp knives and run them until there was the least signs of roughness on the face of board, then stop the feed, draw out the box, and with a fine-grained oilstone and some oil rub over the edge of plane irons while in the box, push box in again and so on. This operation I would repeat four or more times, before I had to grind those knives. My boards always had a superior appearance, and I could always hold my own for quantity. My opinion is that a machine worked as above with two knives can equal the machine for output with three, give the boards a far better appearance, and be worked with far less power. I have seen shavings from the first iron worked on the lines of the three-plane-iron system that would do to be made into hat boxes.

The two side-head spindles should be as short and strong as possible, fitted in large suitable castings, with extra large bearing surfaces, and fitted with ball bearings and ball thrust washers underneath the top side-head brasses, with independent traversing screw to each spindle. Some makers think the side-heads should have a vertical adjustment; I think this is quite unnecessary, as it greatly increases the cost, and reduces its rigidity. The same advantage can easily be obtained by making all cutter-blocks or special cutters adjustable from the top of the spindle end, on the principle of shimer heads. The advantages of this arrangement are—it is cheaper, just where the operator wants it, and always within his sight.

The opening within the bed for the traversing of the side-heads should be fitted with loose plates, to form, as it were, a continuous solid bed between them, and be arranged so that you can move them at will to suit wide or narrow boards.

To say that a lot of them supplied with the machines answer the above description is to give them a nickname. What we want are three plates of good thickness at each end, at least one-half inch thick and upwards, of different widths. The two edges of the opening in bed to be planed down to this depth right across the machine, and small holes drilled in the bottom for a steady pin to drop into, which should be fitted into the underneath side at the end of each loose plate; then it would be possible to move them to suit the work in hand. It is astonishing how these small items make or mar your work.

The pressure between the side-heads should have two sets of runners, one single and one double, made to suit the difference in width and thickness of timber. The side pressure shoe should be made to hold the wood close to the cutting edge, and adjustable for the different depths of cut or length of irons, and automatically fall to or away from the cutters with the depth of cut, as in the case of wide or narrow boards. The old-fashioned pressure shoes have to be so short to avoid coming in contact with the cutters when new irons are put on, or you require to take a deep cut, or when a wider board is fed into the machine, they are useless as a chip-breaker. The top head should consist of a four-sided block slotted with lips to act as chip-breakers, with long parallel ball bearings, fitted in massive slides to withstand the heaviest duty imposed upon it by deep cuts and fast feeds, vertical adjustments to suit the different thickness of wood. The pressure apparatus, both before and after the top chipper, has not received anything like the attention in this country as in America and on the Continent, but I am glad one of our leading makers in this country has adopted the sectional steel shoes made to rise and fall with the top head, and adjustable to suit the lengths of knives and automatically fall away from the cut as the depth increases, and can be swung over out of the way when required. This is a great advance over the old type, and could be applied to the enclosed top head as well as the open. The countershaft as sent out by some makers is much too light for the heaviest duty, and springs a good deal; the bearings are very much too short, and cause a great amount of trouble. This should be of ample size, to ensure the necessary stiffness under all conditions. The little extra weight in shaft could easily be saved if lighter pulleys were use, either in iron or wood. This shaft should be run in roller bearings of the self-oiling type.

These are the opinions of one wood-worker. Now come along, and record yours.—J. G. H. in Timber & Woodworking Machinery.

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### Practical Hints on Knife Grinding

Don't set up your knife grinder in a dark corner or some hole that cannot be put to any other use, but rather set up the machine in front of a window so that a good light will strike on the work.

Don't think that an inexperienced mechanic can know all about knife grinding until he learns it, although a man of no experience with machine knives may devolep into a very competent knife room man, if properly cautioned and instructed. All "skilled" men had to learn "how," but some of them in learning spoiled knives worth a good many dollars, without knowing it. The employes paid dearly for this experience.

Don't be hasty in grinding knives or think it takes too long if the grinding seems to go slowly. Well informed operators know that a knife if ground slowly, cannot be spoiled by having the temper drawn or edge cracks started. A light cut in grinding is best and a knife slowly ground will need grinding less frequently for the reason that the temper has not been impaired and its cutting edge will remain keen for a longer period.

Don't think that any kind of a wheel will cut well because there is water running on it. Water is useful for keeping the knife cool and preventing wear of machine from dust getting into slides or bearings, but water will not make a poor wheel cut freely and may actually cause a good wheel to fill up if oil gets into the water circulation. If oil reaches the face of wheel it is next to impossible to keep the wheel from glazing. Frequent use of an emery wheel dresser is the only remedy. Be sure that your grinding wheels are right in grain and grade for the work. Wheels are exceedingly various and may easily be furnished in grain, grade and hardness unsuitable for the work. We regularly furnish with all of our different grinding machines wheels that long experience has demonstrated suitable, and that in perhaps 99 cases out of

100 prove satisfactory. The odd one, if defective, we replace. We invite repeat orders for grinding wheels and are favored with a large number of such from customers in all countries.

Don't run a grinding wheel without regard for proper speed. A wheel may be run so fast it will not cut well and so slow that it will wear out unduly.

A 6-inch cup wheel may run from 1800 to 2400 according to grade.

A 12-inch cup wheel from 1200 to 1500. An inch cup wheel from 1500 to 1800.

### How to Saw Timbers

When it is necessary to make two sound timbers out of a large log splitting through the heart should always be avoided, and if the following system is adopted better timbers will be produced, and the danger of exposing heart shakes will be greatly minimized.

Presume it is necessary to make two 12 x 12 timbers out of 32 inches in diameter. Square up a 12 x 28½ (the ½ inch allows for two cuts of ¼ inch Kerf), then cut the first timber, and if free from heart, turn cant over and saw off 4 inches, and you will then have the second timber on the carriage. If after the first cut shakey heart or other defects are exposed, without turning cant make another cut of 4 inches, which leaves a 12 x 12 on the carriage, and a glance will show whether it is suitable or not for required order.

As the custom is now becoming general to order Octagon (eight equal sides) Spars, both sawn and hewn, the information on this subject will be appreciated by those who make a specialty of this line.

An octagon can be made out of square timber by the following rule:

From diagonal deduct one side of timber, and that will give one side of the octagon.

To find the length of the side of the shingle to be taken off the corner of the timber at right angles to the diagonal, deduct the half the diagonal from one side of the timber.

One side of a square timber divided by .707 gives the diagonal.

Examples: Find the length of one side of an octogan that can be made out of a timber 35 inches square.

Diagonal of 35 x 35—49.50 inches
One side of 35 x 35—35.00 inches

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One side of octagon —14.50 inches.

Example: What is the length of the side of a triangle to be taken off the corner of a timber 35 inches square to make an octagon.

Procss: 2)49.50 diagonal.

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24.75 half the diagonal.
35.00 inches one side of timber.
24.75 inches half the diagonal.

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10.25 inches length of one side of triangle.
—From "The Practical Lumberman."

### High-Speed Steel for Cutting Wood

Special, "high-speed" or "self-hardening" tool steel for cutting the cost of machining metals has been so successful that its use should be extended to other lines of industry where cutting tools are employd. This is specially true since steel manufacturers have succeeded in overcoming the extreme brittleness which used to be the chief deterrent to the extended use of high-speed steel.

A number of years ago we were using an imported brand of steel in cutting off tools in our turret lathes. It proved especially advantageous because we were cutting off brazed steel that was extremely hard in spots and no other steel would hold an edge. We overcame the extreme brittleness of the tool by so shaping the tool holders that they gave a maximum of support. Later, we were confronted with the problem of getting out certain wood turnings in hard mahogany, quartered oak and black walnut at a lower cost than had ever been attempted before. It occurred to us that this same special steel might help us.

Our first experiment was with a piece for a cutting-off tool. We ground it up for a beading tool and attached a wood handle for the burner. It proved too brittle to retain a keen edge in contact with a walnut or oak knot. We found that we could meet this trouble by grinding on an emery wheel until the friction of the wheel heated the tool up to a cherry red. This left the edge tough enough to stand up.

This tool required whetting only about one-tenth as often as the ordinary tool, and the grinding was correspondingly less. Our man could burn it on hard knots till it was brown and not draw the temper at all. He was continually burning his regular tools on these hard woods and having to temper them over again.

Grinding one of the special steel tools was a task, because they would glaze the emery wheels up very quickly and one had to keep trimming the wheels all the time.

The general advantages were so great that we decided to make up a full set of turning tools. We found it impossible at that time to secure in this country any of this steel of the right sizes to make into turning tools and had to import some. Half of it was spoiled in forging as none of the local blacksmiths knew how to work it and had to experiment in order to find out. The original cost of the steel was ninety cents per pound. But although the steel in our finished tools cost us $1.80 per pound it was worth its weight in gold. The workman who used this set doubled his production on the hard woods and increased it nearly fifty per cent on the softer woods.

Our next set of tools was made from this same grade of steel of American manufacture, and we experienced no trouble in grinding. It kept fully as good an edge as the imported steel.

Our difficulty in forging lay in the fact that we had not heated the metal to a high enough temperature. We had to heat to a bright yellow; but enough to burn and ruin ordinary tool steel. We found, too, that we could not strike it with the hammer after it had reached the cherry-red stage, at which ordinary tool steel is forged, without cracking. To anneal the steel so it could be machined, we had to pack it in lime inside sections of iron pipe, capped at each end, then heat to a bright red and let the steel cool as slowly as possible, buried in hot cinders.

Our adaptation of this steel to wood-turning was so successful that we decided to try it on wood-working machinery. We made all our shaper cutters of it and found the advantages just as pronounced as in the turning operation.

When we tried it out on the self-feeding moulder or sticker we learned its limitations. Stock fed through at uniform speed regardless of knots or hard spots would crack off the pointed ends of the cutters. They

were still too brittle to withstand the impact of the sharp blows against hard knots.

We found we could successfully use high-speed steel in all wood-working operations in which the feed of the stock was at all times in the control of the operative. He could favor the cutter or tool when it came against a knot or hard spot in the stock.—Leon S. Oliver in Factory.

### End Matching of Flooring

End matching of flooring, when properly done at the mill, is one of the greatest conveniences for the carpenter when laying the floor and also it is one of the greatest savers of material.

Where flooring is carefully end matched there is practically no waste, because there is no need for the carpenter cutting his flooring except at the end of a run at the wall of the room or something or other of that kind, and even then he can use the end cut off as a starter in the next course.

Where the end matching is properly done and narrow stock is used, it is immaterial ordinarily whether the end point comes over a joist or between the joists. In the late practice of using narrow stock from 1½ to 2½ inches face the tongue and groove on the sides and ends will support the joists so that they are practically as firm whether they come over a joist or not.

This saves the carpenter from having to cut and make joints at the joists. It saves him wasting the timber and makes the laying of the floor much easier. So much easier is it, in fact, that the wonder is that people have not made a practice of end matching practically all flooring.

Oak and other hardwood flooring is generally end matched, but it is seldom that end matching is resorted to in pine, yet the pine people could eliminate in their flooring trade all the wrangling and worry over odd lengths and short pieces if they would simply end match them. There is seldom much objection to short pieces in hardwood yet there are one hundred times more short pieces in hardwood flooring than there are in pine. If the short pieces in pine were end matched it is doubtful if there would ever be any objection to short stock in a pine floor, even though the mill men would work up lots of short stock into flooring that heretofore has gone to waste. It would make for economy at the sawmill and planing-mill as well as at the building where the flooring is laid and the saving in material itself should well repay the trouble and expense it involves in end matching.

Take note, however, that end matching properly done has been specified. Where end matching is not properly done, where the joint is not square and the tongue and groove do not fit together as they should, it is very annoying and is really a waste of time, because to cut the point off square means to eliminate the end matching and go back to the old problem of making a square joint at the joist.

It is simply a matter of getting both the dealer and carpenter to realize the advantage of end matching and to doing the matching properly. For where it is properly done, it saves time for the carpenter in laying it and will save lumber. Instead of from 10 to 20 per cent. of waste there need not be more than 5 per cent. of waste in laying flooring that is properly end matched.

### A One Man's Job

It's a mistake to let every Tom, Dick and Harry about the place file the saws. Even in small places where but few men are employed, it is best to let this be one man's job. No two men file and set saws exactly alike. Each may be fairly proficient at it, but they vary a little in their methods.

Keeping factory saws in condition so that they will do good work and plenty of it, is a job that requires expert knowledge that can only be acquired after months of practice and careful study of the individual saw.

Saws—especially circular saws—and that is the kind we are speaking about, are mighty peculiar, and the man whose job it is to take care of them soon learn all about their peculiarities, and treats them accordingly.

No two saws are just alike. They may be of the same diameter and of the same gauge, and teeth pitch, but in some particular sooner or later one saw will be found doing better work than the other. That is one of the reasons why one man should have the care of them. It makes no difference if the sharpening is done by hand or by machinery grinding, let one man do the job. It is the custom in most all large plants—why not in the small ones, too? Try the one man method for a few months and you will be surprised to find how much more and better work your saws will do.

### Electricity in the Filing Room

There is perhaps no place about the wood-working institution where the convenience of electricity as a transmitting agent is more evident than in the filing room. Often it has been necessary to put a separate small engine in the filing room and reach it with a long line of steam pipe, or else extend belting to a lineshaft from some of the lower drives up into the filing room, perhaps on the third floor overhead. This has not only been cumbersome, but has often proven a jerky or rickety driving system, because there is lack of stability about the frame and supports of the filing room. Now, however, with electric transmission, the filing room can be reached easily and be made as convenient as the proverbial pocket in a shirt. Moreover, we should soon reach the time of the general use of the electric current for brazing purposes in the filing room. It has long been used for welding wagon tires and work of that kind, and it should be practical to use it instead of the brazing irons and the forge, which will add more to the convenience and general progress of the filing room equipment. Even where the entire machinery of the mill is not electrically operated, there is generally a dynamo for lighting purposes, and the electric current should be used for the filing room equipment.

### Efficiency of Files

An astonishing variation in the efficiency of files has been shown by a new testing machine. Five files were worn out in almost exactly the same number of strokes—about 110,000—but the amounts worn away were respectively 4.4, 11.5, 18, 23.5 and 38.3 cubic in. The variations are more marked on cast iron than on steel. Various factors determine the cutting efficiency, but with differences so great the use of poor file may change a profitable piece of machine work into a losing one. There is evidently room for progress in the scientific making of the old and familiar file as well as in their grading.

# Veneers in Casket Making

Editor's note:

The following article which was published in the Hardwood Record recently will be read with interest by Canadian casket manufacturers.

All things come to him who waits, say the proverb, and while it is probably true that the waits required in order to secure a number of desirable things would be prohibitive, considering the allotted span of life on this mundane sphere, it occasionally happens that things turn out all right just by letting them develop along natural lines. A case in point is the coffin industry in its relation to the use of veneers.

Not many years ago the makers of caskets called on the veneer people to supply them with stock for curved ends, where solid material could not be used without difficulty, and where the built-up piece served the purpose well and was also cheaper. The business was sizable, although not large, and the manufacturers of thin lumber suggested to a good many members of the consuming business that built-up stock could be used to advantage in the remainder of the work.

"What are you trying to hand us?" just about expressed the typical casket manufacturer's attitude. "You can't give us veneers that will enable us to produce coffins any more cheaply; if anything, the cost will be considerably in excess of solid wood. We get an advantage by telling our trade about the rich solid mahogany and quartered oak work we are turning out, and do you think we are going to throw this away simply to use veneers, which will cost us more anyway?"

The veneer trade put up some pretty good arguments, but apparently did not bear fruit very readily. So the manufacturers sat down and waited, contenting themselves meanwhile with taking care of the business in other lines, and managing to exist without being called on to furnish more material for coffin manufacture than the curved ends referred to. And the waiting was to good purpose.

Gradually a coffin manufacturer or two figured the thing out, realizizng that the use of solid material did not produce especially fine results, as far as appearance was concerned. For example, when a mahogany casket was being made, it was usually necessary to use two boards in order to get the full fourteen-inch widths which were required. This resulted in a combination of figure that did not provide uniformity. There was immediately apparent the fact that the material was not from the same log and probably not even from the same tree.

Then, too, there was the matter of waste. Cutting lumber to dimensions and working it into shape for use created a lot of offal, which could not be utilized and which was consequently burned. Careful figuring showed that even from a standpoint of economy it might be wise to look into the use of veneers, in which there would be little or no waste, and which could be bought, cut to dimensions, at a price which would make their use practicable, at all events.

They began to try out veneers, and found that they could use them to advantage. In some cases the final cost proved higher than when solid lumber was used, but this was more than made up for by the great beauty of the resulting work, and the absolute uniformity in figure and texture of the face material. Instead of having a casket made up of wood which, while of the same general stock, varied sufficiently to prove the lack of uniformity, the veneers, matched up exactly and appearing in all parts of the casket, were absolutely alike, as was to have been expected. In addition, of course, much more handsomely figured stock was obtainable under this process than it was possible to secure in any other way.

Those who were putting out veneered coffins were able to show their trade handsomer goods than were ever seen before. The demand for work of this character soon became quite decided, and manufacturers who had been contenting themselves with using the dull figured solid mahogany and quartered oak, had to bestir themselves and come into the market for veneers in order to keep in line with the new demand.

In order to continue their hold on the trade, some of the more progressive manufacturers of caskets have been making use of other woods than quartered oak and mahogany in veneers, and Circassian walnut and figured gum are now being utilized. This is by no means general, but a good many manufacturers are trying it out on their own trade, and have found the results to be all that could be desired. It is probable, in view of this, that the manufacturers of veneers will have a more varied and substantial trade from the casket industry in the immediate future than has ever been the case in the past.

It is not to be assumed from the foregoing that the casket people have had a sudden change in attitude, nor that manufacturing methods have been entirely revolutionized. As a matter of fact, some of the largest factories are continuing to use the old-fashioned methods, and assert that they cannot make use of veneers to advantage except in the way which has been referred to; and on account of the number of ends with straight lines, in the shape of hexagons, for example, being designed, the demand for this kind of work is not as large as it was a number of years ago.

"I tried out veneers several years ago," said the manager of a big casket factory recently, "and found that I got excellent results, as far as the appearance of the work was concerned. It was not any cheaper, though the increase in expense was not great, and I was thoroughly satisfied with the results. The powers that be, however, told me to quit using veneers, saying that they believed the trade wanted solid work. That is why we are turning out that kind to-day instead of the work with built-up sides and top."

The decline in the use of the cloth-covered casket is another factor which seems to favor the growth of veneer consumption in this industry. The coffin covered with black cloth was usually made of chestnut. It has not been especially popular of late years, buyers of coffins apparently preferring the kind with the wood exposed. The others are cheaper, of course, and the casket manufacturers are glad enough to get away from this trade and increase the sales of high-grade caskets. As the use of cloth coverings becomes less and less, it may be inferred that the manufacture of high-grade veneered caskets will become larger and larger. At any rate, that is what the veneer manufacturers in touch with this business appear to believe.

"Time certainly brings changes," said a veneer expert the other day. "A few years ago I would not have thought that I'd be cutting veneers for use in the

sides and tops of caskets. Nor should I have ventured even in my most hopeful moments, to opine that anybody would ever consent to be buried in a veneered Circassian walnut or figured gum container. It does look a little festive for the purpose, I'll admit, but the effect is certainly beautiful and for certain classes of trade I imagine the funeral directors are getting and will continue to receive, a pretty steady call for that class of goods.

"At all events, if the demand continues to grow as it has been doing, I think that the casket manufacturers will soon be alongside the furniture and piano trades as consumers of veneers." G.D.C.

### The Pocket Planing Mill

The vest-pocket saw mill is an old-time institution that, during the days of great milling undertakings, was derided and laughed at considerably; but it still abides with us, and in great numbers, too. And now there is extensive development in another type of wood-working institution that we may call the vest-pocket planing mill.

The equipment in mind is not the single machine attached to some of the smaller mills, but the series of combination wood-workers, light saw benches, planers, band saws and other special tools designed specifically for carpenters, contractors, blacksmiths, and others who desire a small edition planing mill of their own. For a number of years this idea has been developing, and now has become so widespread that some machinery houses devote themselves almost exclusively to supplying light-weight combination machines for these vest-pocket planing mills. And they are doing more of the machine wood-working to-day than it is possible to estimate.

Sometimes it looks like they are putting the old jobbing planing mill in a peculiar position, practically between two fires. Again, they look like simply additions to the wood-working machinery family, which relieve the burden of hand work done in the shops heretofore, and enable the carpenter, the builder and the blacksmith to make up in this way some of the additional cost of raw material, and to do elaborate work on what heretofore was done very plainly.

However this may be, and just whatever place these may occupy, and whatever other institutions they may crowd a little, has little to do with the main fact that this vest-pocket planing mill idea is a popular one this is calling for a peculiar line of skilled wood-workers. In a way, it seems to be calling back into training the old Handy Andy, or all-round genius, because it often involves the handling by one man of a great variety of machines of light and simple type, and limited in the amount of production.

### Scalded to Death

A Frenchman by the name of Behan was scalded to death by falling into a vat of boiling water at the sawmill in Gigues, a town in Quebec. Behan, who was a young man, about 22 years of age, had been working at the mill for some time and he was walking along the vat when in some manner he slipped into the boiling water. Fellow workers immediately rushed to his assistance and pulled him out although he was terribly burned. He lived about four hours after the accident, however. The young man was well known in and around Gigues, where he had resided for some time. He was unmarried.

### To Braze Band Saw Blades

Scarf the ends of saw off, bevelling with a file to make a lap joint. Let the bevel run back from the ends of the blade about the distance of one tooth. Then put the blade into position in the brazing clamp, taking care that back of saw comes perfectly straight, and that the lap-joints come nicely over each other in the middle of the clamp. Take a little pulverized borax, mixed with a few drops of water to form a paste, and spread a small portion between the joint. Cut a small piece of soldering material, as large as the joint, and insert this also between the laps; the saw is now ready to apply the heat. Heat the tongs to a good red heat and apply them over the joint, holding them in position until the heat dies down to a low red, when the tongs can be removed, and it then remains but to straighten the blade and file the joint down to a uniform thickness with the rest of the blade, and the job is done.

For a soldering material, use silver solder or very thin sheet brass. The brass is much cheaper and makes fully as good a joint as the silver solder, but requires a higher heat to melt it. For sheet brass, make the tongs nearly to a welding heat. For silver solder a bright red is sufficient.

The best way to pulverize the borax is to put about three drops of water on a smooth slate, then rub a lump of borax on the slate, in the water, until a paste is formed.

Always dress the joint down after brazing, to the same thickness as the rest of the blade; otherwise, if left thicker, the joint will wedge itself into the saw kerf, and break the blade at some other point.

Parties who have a gasoline blow-torch (such as is used for a paint-burner) can use same instead of the tongs when silver solder is used. Care must be taken to have joints lay flat together before applying the torch. A piece of very thin wire wrapped tightly around the joint before applying torch will lessen the risk of a bad joint.

### Was He a Millwright?

A man who is making a machine for use in elevators was recently told by the millwright (?) who has charge of the repairs for a certain company, that he ought to put flanged pulleys on the machine, as it was difficult to line the pulleys up so the belt would stay on without. That millwright would seem to be an appropriate subject for the recommendation which used to be occasionally made by old Uncle John F., down in Maine: "He ought to have a hole bored in his head to let the dark out." If a machine itsn't set so that the belt will stay on without flanges on the pulley, that belt won't last long with flanges; and, when gray-haired men holding responsible positions advise such expedients, is it any wonder that the youngsters sometimes nail up strips of boards to keep their belts in place? There are places where flanges on pulleys are desirable, but they are not to hold the belt in place while doing its regular routine work.

When making a glue joint in a leather belt, if there are no clamps handy, one may place a board of the same width of the belt under the lap, with another of the same dimensions above it, and nail through from one to the other. This will leave the nailholes in the leather, to be sure, but they are not of much importance.

# Sorting Lumber

There is a condition of things in the cabinet wood trade to-day that in a way reminds one of the process of cream separating, in the business of sorting and marketing lumber.

In the old days farmers separated the cream from their milk by a slow, natural, incomplete process, and it remained for a certain condition in mechanical progress to develop cream separating into a science. Maybe the connection between this and the hardwood lumber business will not at once be apparent, but the comparison herein presented may furnish a new viewpoint on sorting and selling hardwood lumber.

There was once an observant sawyer operating a hardwood mill of small capacity where oak was being cut into car stock, bridge timbers and other common merchantable dimensions. In the work of cutting the heavier dimensions was produced a large percentage of siding. Some of it was made one inch and some of it two, whichever best suited the work of reducing the logs.

This siding was considered unimportant and often was marketed at even a lower price than the squares and heavier dimensions.

Now this observant sawyer noted that much of the siding was clear stock, so he suggested to the proprietor that instead of running it in with the common sound boards that it be reduced to wagon pole dimensions and piled separately until enough for a carload could be accumulated.

The proprietor did not think much of it, but he made no objection because he was not seriously concerned with the siding, simply considered it as a sort of by-product of his bill stuff. Therefore, he let the sawyer have his way and carry out his idea. There was something of an awakening though and an arousing of a somewhat lively interest when he marketed the first car of clear stock and realized that out of a car of it he might get returns that would almost double the value of a carload of his bill stuff.

That was away back in by-gone days, and since that time practically all hardwood millmen, large and small alike, have learned to discriminate in the matter of clear stock as compared to common sound and to seek to utilize each log for the kind of cutting it seems best fitted.

Yet in conditions existing to-day there are better opportunities for observant manufacturers and handlers of lumber to do things which enable them to realize more for their product than existed in those by-gone days.

There is to-day a demand in furniture, sash and door factories and planing mills for the unusual in wood figure for natural wood finishes that present something striking and unique. Part of this demand for fancy figured wood is supplied by the veneer trade, but there is much of it in the solid lumber, and there are many uses for which the solid lumber is better adapted.

It is not merely a rage for mahogany or Circassian walnut, every kind of figured wood is finding favor, and there is also a stronger inclination than ever before to use wood in its natural color and to seek for different woods to get variety of color, which makes a market for the figured product in every variety of hardwood.

Well may a product of this kind be classed as the cream from lumber operations. The cream gatherers in the lumber business have heretofore been pointed out as those who will buy a carload of quartered oak or something of the kind, select out that which shows the most conspicuous figure and make complaint of the rest. They take the cream out of the shipment and want the price reduced on the rest of it or reject it entirely.

The real cream of the hardwood product is the figured wood. The unusual trees, burls, crotches, etc., and the cream separating, as applied to this, consists in methodically assorting, assembling and marketing them for all they are worth.

There is hardly a sawmill man operating in hardwood but who from time to time has some of this unusual figure in his product. Sometimes it is an entire log, it may be a crotch, or it may be an oak tree with mammoth burls on it, which may be considered a nuisance and yet when cut off and worked up may prove valuable.

It is a little difficult to suggest what might be termed a scientific method for assorting or separating out this cream of the hardwood product, as it occurs in different forms and often must be handled by different methods.

The big mill making enormous quantities of lumber that pass in a more or less steady stream under the eye of the grader might do some good by instructing the grader to mark the unusual figured stock as special and have it piled aside. There is a certain chance also to sort the logs, to discern the unusual in figured wood from the appearance of the logs, pile these aside until enough of them are accumulated for a run before putting them through the mill.

Where a mill has a dimension stock department there is sometimes a chance to work burls and freak pieces of logs and timber entirely apart from the main mill itself. Often, too, in cutting waste and odds and ends into special dimensions for furniture there is this occurrence of the unusual in figure that is worth while and the same system of sorting out may be resorted to as that employed in sorting out lumber at the mill.

There is no need to elaborate on how fitting it would be to use figured framework in a piece of furniture made up of matched and figured panels, or how much more valuable this should be to both the timber and the furniture manufacturer than plain dimension stock. These points are obvious, besides the value is never fixed, depending upon both the figure itself and the appropriate setting it gives to something else.

The main point to the whole story is that just as the observant sawyer in by-gone days saw a way to realize from what was regarded as a by-product more than was obtained for the regular bill stock, so are there opportunities to-day—opportunities that are too good to let pass to separate this cream of the forest product found in the way of especially figured wood, from the regular stock of lumber without in any way detracting from the grade or value of the regular product, and realize a special figure for this cream that may add considerably to the profit account of the sawmill.

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It should no longer be a question of whether or not you need or desire safeguards around machinery. The only question for debate now is, which kind.

# A Practical Talk on Stains and Practical Staining

### A Helpful Talk on Stains and Practical Staining

Stains used in wood-finishing may come to us in the dry form, some powdered, some solid, and others as roots, as with certain vegetable dyes. These are made into liquid stains with water, or turpentine, or linseed oil, or alcohol. Thus we have water stains, oil stains, and spirit or alcohol stains. When oil is employed it is usual to associate with it turpentine.

Vegetable stains are little used now, being supplanted by the anilines. But the old vegetable stains were much more permanent to the light, or more durable, than the aniline stains. On the other hand, the anilines are much clearer and richer in effect than the vegetable dyes, and are much cheaper, and easier to prepare.

### Oil as Binder or Solvent

The oil used in an oil stain serves as a binder—not as a solvent, the turpentine being used for the latter purpose. Too much oil on the surface of the wood will leave a fat or gummy-oil surface and this is undesirable. Of course, this may be obviated by carefully wiping away the oil from the surface as soon as possible after applying the stain.

In addition to turpentine there may be used benzine, benzozl, gasoline, etc., for thinning oil stain. These stains fade sooner than water or spirit stains, as a rule, but they have the advantage of not raising the grain of the wood as the latter do, water stain being much worse than spirit in this respect.

It is difficult to get some certain shades of color with oil stains. In some instances it is impossible. Colors like gray oak may be obtained only from water stain or a chemical stain. Fumed oak cannot be made with oil stain at all because the oil will darken the wood too much.

In the olden times wood staining was done more perfectly than now but conditions have changed. For instance, in house building work at least we do not as a rule care to have the stain penetrate too deeply, for it it often desired to have the color finish of the interior changed, so that if the stain is very deep it is impossible to alter the effect, unless by making it very much darker. With a less penetrating stain, as with oil, we may with comparative ease remove the old stain and make the woodwork almost any other color we may choose.

### Furniture and Interior Finish

Let it be remembered also that the conditions surrounding the doing of furniture and house woodwork are different. While the furniture-maker will select the wood for a piece of furniture so that it will all be alike, in a house one may see white and red oak on the same door, for instance, and hence it is difficult to get as good a staining as where the wood has been carefully selected.

### Origin of Aniline Stains

The aniline stains are not all made from coal tar, as many suppose, as some are made from salicylic acid, resorcine, tannin, etc. But many are made from coal tar products; for instance, those made from benzole, naphthol, phenol, and alizarine.

Sometimes there are complaints about the varnish not drying over aniline stain, and the trouble is at once attributed to the aniline. True, too much of the stain on the surface will injure the varnish, then this may be said of all other stains. The fault is more likely to rest with the man who did the staining.

In all cases of wood-staining the stain should be wiped off dry, as we might sap; that is, leaving none on the surface. As a rule, the stain should have ample time for soaking in, though in certain cases the stain is best wiped off at once, as I have described in other parts of this work.

### Stain Troubles with Varnish

Stain Penetrating Varnish. If there is trouble with the varnish drying, or the stain coming through, it would be well to apply a thin coat of shellac varnish. The stain will not come through that, and if it is applied on the stained work before varnishing it the shellac will hold back the stain all right. But if an oil stain that is soluble in alcohol is used, then the shellac varnish, being a spirit varnish, may work up the stain, and so cause trouble. Likewise, with oil stain, too, the shellac will work on the oil and take up color, so that it requires more care in oil staining than with other stains, and the workman should be sure to wipe away every vestige of stain or oil from the surface of the wood.

Aniline Stains. Aniline stains are usually made with alcohol. The varnish coats greatly add to the permanence of the stain.

Before applying aniline water stain, apply to the surface a mixture of 5 parts benzine and 1 part raw oil, which is left to dry. This will prevent the too rapid absorption of the stain, and to some extent prevent fuzzing of the wood.

A German authority says that aniline colors may be made to dissolve in water by dissolving them in a solution of gelatin dissolved in acetic acid. The aniline color is added to this solution, which is like a syrup in thickness. The mass is then stirred to an evenly colored paste, then heated over a water bath. This refers to colors that do not ordinarily dissolve in water.

Anilines are sensitive to the action of organic matter, such as wood, for instance, and it is best to try out a stain on a piece of wood first, and observe its action. The same stain may act differently on various woods; thus, oak, chestnut and some other woods used in finishing, contain more or less tannic acid, and this must be reckoned with in stains.

When we mix, say vermillon and Prussian biue, together, we get a purple, but mixing red and blue anilines together we will only get a dirty russet-green. But by first staining the wood with a blue aniline, and then with a saturates solution of spirit crimson or grenadine, the latter being a magenta red, you will obtain a fine purple. Reversing the operation, first staining the wood with the crimson, then with the blue, we get a color something very like that made by mixing.

### A Stock Solution of Stain

Standard Solution Stain. It is advised that a standard solution of stain be made for stock, so that when using a stain you will get more certain or uniform results than when the stain is mixed up for the job in the usual way.

Place a measured quantity of alcohol or water in a bottle or jar, and add to it a certain weight of color.

When this has been dissolved add more color, weighing it, and so proceed until the liquid has taken up all the stain it will hold in suspension, this condition being known as a saturated solution. Set the solution aside for 24 hours, shaking it now and then. Let it settle then until the excess coloring has settled to the bottom, when the clear liquid may be poured off into another bottle.

### Identical Shades of Stain

This preparation may be labeled "Standard Solution," adding the name of the color. Then by adding a weighed or measured amount of liquid to the standard solution, which also must be weighed or measured, you will be sure of getting an identical shade or tone of color every time.

Bronzing of Color. Some anilines when applied too heavily will show a bronze effect, this being particularly true of the green and blue. To avoid this bronzing, thin out the solution more. Better apply two or more coats, to get the desired depth, than a heavy coat.

System in Staining Wood. Staining is best done when the object is lying in a horizontal position because the stain will not run as when the work is in a vertical position. In the latter case the stain must be applied carefully, to avoid runs and streaks. A soft or porous wood will require more care than one with a denser surface. Soft wood is apt to take up too much stain. Hard wood should have the stain well rubbed in, while soft wood should have it well rubbed out.

The staining is best which shows the structure of the wood best, and for this reason we select the transparent pigments for staining with. The grain of the wood must not be clouded. The stain must penetrate well, and no particles of it should show up in the pores of the wood as small specks, nor obscure the grain, as stated.

Deep staining is desired because then if the work receives a knock it will not show the bare wood. However, as tsated elsewhere, a superficial stain is best when there is a probability that the work will be changed to a different coloring sometime.

Water Stains. Stock solution of water stain may be kept from spoiling by adding a few drops of carbolic acid, or creosote, or formalin. Keep in well stoppered bottle or jar, never in a metal vessel.

Water and spirit stains resemble each other closely in that both penetrate well and stain the wood better than an oil stain. When properly prepared the water stain will be free from speckiness, will have very little body that may be noticed, and a bottle of well prepared stain will show up perfectly clear when held up to the light.

Water stain should be quickly wiped off, after being well rubbed into hard wood, on soft wood the stain not being rubbed in. A thin coat of white shellac on the stain will hold it, and any finish desired may follow.

Water stain is best for some woods; take birch, for instance. Oil stain will sadden its color, while water stain will brighten it, and bring out the wood's beauty.

Water stain should be diluted to the desired strength, avoiding too deep a color. The sponge is the best tool for applying water stain. If a brush is used, then use a wide one, at least for large surfaces. Several thin applications of water stain are better than one heavy stain. If water stain is used too liberally the excess of moisture will cause warping or twisting in some cases, and raise the grain of the wood badly.

For hard woods hot water stain is always best, as it penetrates the wood better than cold stain. As a rule the water stain should be used at least warm, if not hot, and the object to be stained would be better if warm. Soft woods take water stains well enough cold. And soft water acts best with stains, distilled water being best of any.

If it is desired to make a water stain lighter, add more water to it. Rubbing the stain off well also tends to lighten the coloring.

Spirit Stain. Stains dissolved in alcohol are known as spirit stains. They are not used to a great extent by house wood-finishers, but cabinet-makers employ them considerably in their work. They are close rivals of water stains for good work, giving as they do clear, bright, transparent effects. Many of the colors used for spirit stains may be dissolved also in water. They may also be mixed with shellac and used as a finish if desired. This will give a richer effect than the stain alone. Many wood-finishers believe that mahogany spirit stain may be applied with less labor than water stains.

### Applying Oil Stains

Oil Stain. Oil stains would be ideal were they minus some rather serious defects. They are easily applied, never show laps in doubling up, and they raise the fuzz of wood very little. They will bear any amount of rubbing out, and properly applied give very fine effects. But they do not penetrate the wood deep enough, so that when the wood happens to be marred the raw wood is apt to show up. Also when rubbed the rubbing is apt to go through.

The oil in the stain also clogs the pores of some woods, so that when it is desired to paste-fill the wood the filler cannot enter and seal up the pores perfectly. The oil in the stain darkens and becomes more or less opaque in time, injuring the color of the wood.

As a rule oil stains should not be used excepting on cheap work, on white pine or other soft light wood that does not require a filler, requiring only shellac, or a liquid filler. It may be noted, further, that where the wood is stained with oil stain there is apt to be trouble with the varnish, if it is not as elastic as the oil stain beneath it.

### Solvents for Stains

Preparing Oil Stain. Break up the oil color with a little japan, then add oil enough to form a thin paste, then thin up to a staining consistency with turpentine. Try it on a piece of wood, and if too strong reduce the oil and turpentine.

Turpentine is a good solvent for anilines, but it is better to mix oil and turpentine together, as this mixture dissolves the stain better than either alone.

Previous to the last ten years or so nearly all wood staining was done with water stains, but now there is a reaction in favor of oil stains. Oil stain manufacturers claim to produce an oil stain now that has none of the objectionable features of the old oil stain, while possessing all the well-known good features of it.

They probably add some solvent like turpentine or benzol or benzine, which will cause the oil stain to sink deeper than will oil alone.

It is certain that time and labor may be saved by the use of a proper oil stain, over the water stains. Painters have long been accustomed to their use, and find them entirely satisfactorily, except in those cases

where the desired color effect cannot be gotten with oil stain. In the selection of pigments for oil and turpentine stains the painter and wood-finisher cannot be too careful. The very best that money canbuy should be used.

Oil stains are useful when a very dark effect is not desired, as on oak or ash. But asphaltum may be used, being an oil or turpentine stain. The asphaltum used for this purpose must be the very finest imported.

Oil stain is useful for staining the woodwork of a room. If some parts occur darker than the main portion they may be lightened with a rag and some benzine or turpentine to remove some of the stain. Hard parts that do not take the stain dark enough may be gone over again with some of the stain. By these means it is possible to have the entire room uniform of color, showing no laps or dark or light spots.

Oil stain is easy to apply and gives fine effects on most of the common woods that are used.

Whenever it is possible to do so the oil stain should be used very thin. Use only enough oil in preparing it to make it spread easily. After it has set a little, wipe off lightly with cheesecloth, to clear up the grain of the wood.

Where the character of the work requires deeper penetration, to give certain effects, use benzol as a thinner. This has greater penetrating power than turpentine, and is particularly useful in Mission effects. —A. Ashmun Kelly, in Wood-Craft.

### How Wooden Shoe Pegs Are Made

For the manufacture of wooden shoe pegs a considerable number of special machines are required. The pegs are chiefly made from birch and maple. In the first place, the wood is cut by large, smooth-cutting circular saws, into discs of a thickness equal to the length of the pegs. All knots and defects are then bored out and the blanks fed through a machine with an intermittent feed to the rolls. At each stop of the feed a small V-knife travels across the block a trip each way through the machine, leaving the surface scored with V-grooves at right angles to each other, the ridge forming the point of the pegs.

The blanks are next passed through the first splitter, which has the same intermittent feed as the pointer, but differs from the latter in being provided with a knife extending clear across the bed. This knife descends at regular intervals and starts a series of splits in the blank. It does not, however, split it completely, but leaves it so that it will hold together.

The next machine in the order of operation is similar to the second, except that it splits the blanks completely through and frees the pegs. The pegs are then dried and smoothed in steam-heated "tumbler," and sorted on a moving belt, all imperfect ones being picked out. The completed pegs then go down a spout and fall into a barrel, which is rapidly shaken mechanically. This results in the pegs being packed very tightly.

### The Cause and Sources of Vibration of Machinery

When a machine, a group of machines, or an entire plant, shows annoying vibrations, the cause therefor and the source thereof may be entirely different things. The source of most machine vibrations is lack of balance and uneven loads, which latter is merely lack of balance in another form. But the things that cause most of the vibrations in machinery are belts. The belts may not always originate the vibrations, but but they pass them along, add to them and sometimes create them. To get an object lesson on this point, one has but to go into a shop or factory electrically driven, with individual motors throughout, then into a belt-driven plant of some magnitude, where there are lots of heavy belts. The belts are the medium of transmission and acceleration in the factory, like the strings on a violin are the medium of sound transmission and creation. Individual machines may show jerky vibrations when electrically driven, but the disturbance is localized, whereas if numbers ot belts are coupled up into a great system the the vibrations are disturbed, joined into others, so that all machines are affected by both their own and the troubles of others. It is not the electricity that does away with this, but the separating and isolating of the sources of vibrations. Take a belt-driven drag saw, and the jerk of its uneven load can be felt through an entire factory. Cut it loose, make it direct-acting with a steam or air cylinder, and the disturbance ceases. Vibrations originating in the different machines are like small sticks, in that they are comparatively easy to break up singly, hitch them all together with a system of belts and they are like a bundle of sticks firmly bound together—a pretty tough proposition to break ing is uneven in weight or lacking in balance in any way, it adds materially to the source of vibration itself.

### The Use of Cotton Waste

Cotton waste is an inexpensive convenience that many good wood?working machinery users seem rather backward about taking advantage of. A convenient supply of waste is about the same encouragement to keeping a machine clean as a convenient broom is to sweeping when it is needed. The right idea is for every machine operator to have his share of it, right at hand. It is a good scheme to have a metal waste can by each machine, and it costs but little. It is not merely a matter of encouraging cleanliness, though that is the prime object, but it is also a fact that oily waste is about the best thing to use in wiping off either a machine or a tool so as to prevent rust.

If one is working green stock on a saw table or band saw, to go away and leave it without cleaning at night is to find rust there next morning. Just a moment with a piece of oily waste and this could be prevented. A pretty good plan to follow is that the use of cotton waste for cleaning is just about as important, and should be looked after as regularly, as the use of oil for lubricating. In other words, the waste should be as convenient to every machine man as the oil can, and he should use it and clean off his machine every night.

White birch is a favored wood in making many novelties for which its handsome color and failure to warp after seasoning make it especially desirable.

One of the quickest and most satisfactory ways to true up an oilstone is to use coarse emery, with water, on a soft pine board. Choose a clear board of even texture and clamp it securely to the bench. Spread a handful of emery on it, wet freely, and rub the face of the stone on it with a rotary motion. The emery will stick to the board and will cut away the stone with surprising rapidity.

tem of belts and they are like a bundle of sticks bound

### A Good Move

An agreement has recently been reached by representatives of the Board of Education of New York City and of the Pattern Makers' Association by which all apprenticed pattern makers will attend public evening school where a course will be given them under the joint supervision of the school authorities and a committee of the union.

---

Canada is credited with exports in musical instruments to New Zealand as follows:—

| | |
|---|---|
| Organs and harmoniums | $12,900 |
| Pianos | 370 |
| Unenumerated | 370 |
| Materials for musical instruments | 125 |

These figures are for the fiscal year ended march 31st. last.

---

To keep mahogany and other hardwood polished surfaces in nice condition, wipe them off occasionally with a chamois that has been dipped in cold water, and then immediately polish with a dry chamois. This preserves the finish.

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### A Suggestion

If you have ever forgotten your door key and found all windows locked, you will appreciate the importance of this suggestion: Some one should devise a sash lock which can be opened from outside by any person party to the secret. There might be some form of combination or some secretely disposed tripping device, by which the lock could be released whenever the necessity arose. If the improvement lock should be slightly more expensive than the commercial lock, it would only be necessary to apply it to one sash, that on the window most convenient to enter, and it would often be found useful when the door key had been left in the house.

---

Once you get in the habit of it, you will find that it is easier after all, and saves time, to put your tools where they belong immediately after using them, instead of leaving them around to gather up when you have more time. In other words, it is habit more than anything else that leads us to doing things of this kind, and it's one of those habits that should be cured.

---

### Touching on Yard Waste

Concerning lumber-yard waste, a certain manager says: "It is our plan to be on the lookout from the time the stock is unloaded. Our men lay out any pieces that may have broken ends or are warped and twisted, and these are trimmed or ripped, as the case may be, and put on the proper piles. If we find later than some of the wider boards have warped in the piles, we lay them aside, and in spare moments rip them up into strips for small moldings or lattice if the grade is suitable, and, if not, we rip them up into strips for grounds and bridging purposes. In this manner we use everything and nothing goes to waste. Then, too, we are fortunate in having one or two customers who always want something cheap, and the stock that is too poor and will not stand ripping we lay aside for them, and it is always taken care of before any great amount of it accumulates. The main thing is to keep everlastingly at it and to watch the little things, as it is the little things that count in the end."

### To Remedy Loss of Power in a Gasoline Engine

In the operation of gasoline engines, the attendant is often confronted with the problem of how to get full power out of his engine.

He realizes that his engine is not doing all that it can do or is capable of doing. It is not developing the power it once did, it is not running with the vim and energy that it did at one time. It seems lazy and drags along in a half-hearted, slow speed, languid manner under its load. Now why is this so? What can the operator do to restore to it its best power-giving energy?

In the first place, one who has the care of such an engine must realize that there is a specific reason for the actions of the engine.

It does not go "hobbling" along just for "pure meanness" to tantalize the attendant, as we find certain operators inclined to believe.

An engine in action is very much like a man in action, says Canadian Implement and Vehicle Trade. If a man is sound physically, every organ, limb, and fiber of his body fit to perform its duty normally, then his daily tasks sit lightly upon him, and are a pleasure to perform. But let one of his limbs be broken, or a cinder get in his eye, or his heart miss a beat every little bit, or a muscle of his back be sprained, or his head ache, or his body be racked with pain, and if he is not completely laid up for repairs, it is readily apparent that he goes about his labor not with his accustomed energy, but with a limp and a lack of interest that a once suggests a discord in his make-up. For such a man, we at once become sympathetic, and are ready to offer our assistance, even though we feel our inability to relieve him of his malady or discomfort. In the mental weakness of man, we are not now, and may never be able to gain complete control over the human organization, because it was designed and constructed by an infinite mind or power whose mysteries are beyond our comprehension. But, fortunately, for us, the design and construction of the gas engine is the result of human brain effort just such as we are capable of, and if we are true to our calling, we will see to it that we know the reason why our engine is not doing its best, and why it is not giving its best service.

We have already concluded that it is not in prime condition. All its structural parts but one may be in good order, and if we fail to find that one, and bring it up to a good, serviceable condition, we fail in our duty as operator. It is therefore the operator's duty to know the functions of every part of his engine, and to know when it is in proper condition to perform that function. Until he has learned this much, he must expect trouble, and he must expect it so long as he will not get the practice and theory of the mechanism thoroughly imbedded in his mind. He must observe and study and must not be above being told how.

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Training men is made a special study by one foreman. When he had to start his men on an entirely new line of work recently, he first made a thorough study of the best method of doing it. Then he took the assistant foreman under his tutelage and trained him. Next, he and his assistant each took a man separately and imparted their instructions. Each man so developed took a new recruit to hand down his own new found knowledge. Thus, the work continped until the entire shop force had been educated to "the one best way."

### An Experience in Driving Nails

By Rube Borough

My first experience in the little shop at Marshallville was gained in trimming shafts. I learned how to do that one thing quickly and well. And I made good money at the work. But along late in the spring the supply of finished shafts failed to satisfy the demand that my nimble fingers made upon it. For two weeks I worked only half time, and yet kept the shaft room clean.

I wanted more work. It was not long until I got it. The manager of the shop came to me one day and said:

"Jim, we're laying off three men this week in the crating room. The rush in carload shipping is over until fall. But there'll be a good bunch of locals going out of the shop all during the summer, and part of the time I'll need a third man down there to help crate the stuff. Your work here won't keep you going all the time. How'd you like to help downstairs?"

We then reached an agreement as to the new rate of pay.

"You'd better put in all of to-morrow on the crates," said the manager as he walked away.

Now I had put in most of my time in the trim shop alone. And I had worked out my problems free from the bother of too much advice and criticism. But in the crating room it was different. I had to work along side of two veterans of the nail, hammer and saw. To begin with, I was self-conscious in the awkwardness of a new situation. And matters were not helped out any by the numerous trivialities of suggestion that were showered upon me by my helpmates.

"Take hold of the end of your hammer handle," volunteered the foreman after he had stood a minute watching my confused efforts with a soft nail that persisted in bending. "And hit the nail on the head," he concluded ironically.

"Don't press down on your saw; that's what makes it stick to the wood," was another suggestion that enlightened, though somewhat embarrassed me.

The intricacies of brace and bit had to be mastered and in the presence of men before whom I was timid about experimenting. How did these fellows extricate the bit from the brace, anyway? And how could I ever learn to remember, just by a casual glance, the difference between a number 7, 9 and 11 size?

Well, I asked question after question. I determined to overlook the sarcastic irrelevancies offered gratis along with the answers and to retain the one thing—information. I was willing to admit the premises of my helpmates, that I was pretty nearly an ignoramus around tools. So they couldn-t make me feel very bad. And as for my wasting my energy in resentment, I was too busy with a purpose for that.

But I made a great mistake at the start of my crating room experience. I took it for granted that my shopmates didn't make errors. To my untrained eye they seemed to do their tasks perfectly. It never occurred to me that there was probably a time in the shop history of each of them when he blundered and blundered badly. If this thought had come to me from the lips of the foreman or some one else, my first two weeks in the crating room would have been much more pleasant. It would have given me a confidence and hope in my future achievements with saw, hammer, bits and nails, that would have made me from the beginning a much better workman than I was.

But eventually the thought did come to me. At the end of the first two weeks it burned itself joyously into my consciousness. And my whole work was made easier thereby.

It was like this. We were using a lot of tough elm pieces for crating. Tom, the foreman, was working considerably faster than I, fastening almost double the number of sticks that I was. I must say, however, that I was driving the nails straight. And I was taking it for granted Tom was doing the same.

Well, all at once Tom swore vividly at the other end of the crate. He had nipped his finger with his hammer, but kept on pounding, not wishing to reveal the particular form of his clumsiness. I stepped around the end of the crate, ostensibly to help him, but really to find out whether his nail had gone straight into the wood. It had bent without even so much as touching the board underneath. I put one nail easily into the other end of the piece on which Tom was working. Tom tried a second nail. He didn't strike it square and it flew past my head. I sank another in my end. He tried a third in the same place and bent it the fourth blow. Then he got mad and began to "cuss" the company for using such tough stuff for crating and buying such soft nails. He was called into the gear room before he had time to complete his effort, and I stepped around and sank two number eights deep and straight into the boards where Tom had failed.

The experience was illuminating. I was not so much different, then, from the two men who worked at my side. They, too, made mistakes. From that day on I didn't mind their "roasting." And it wasn't but a little while before I was even handier with the tools than they were. I had tried so seriously to improve that I was advancing after the y had become satisfied with themselves.

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### First Aid to the Endangered

Fire Chief Wallace of Cleveland says: "We should have automatic sprinkler systems in all our office buildings, hotels, schools, and other places where so much harm can occur from fire in the fraction of a second. Such first aid augments the fire department the same as if you appointed so many more men. The automatic sprinkler is, in fact, a stationary fireman who cannot be driven out by smoke. Smoke retards and prevents the conquering of a blaze more than any other one factor. Eliminate smoke and the efficiency of a fire-fighter is increased 50 per cent. If we have automatic sprinklers supplemented by a hydrant or connection in the street, we have a stationary hoseman who will not be overcome by exposure or drop from exhaustion.

---

Electricity is used in the operation of saw mills, not so much because of power saving, but because there is a reduction in fire loss and a consequent lessening in the cost of insurance, one manager states.

---

A manufacturing company has centralized its electrical control system in the switchboard room. All the motors are started from the switchboard room upon receipt of an annunciator signal from the workman at any machine.

# WOODWORKING MACHINERY

More than 1,000 Second-hand Machines, Renewed and Guaranteed.

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52 Lines of New Machinery the Largest Stock in the World.

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Manufacturers of

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Sawed and Sliced Quartered Oak Veneers
Rotary Cut.

Poplar, Gum, Maple Cross-banding.
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Veneer Sawed Thin Lumber.
Sliced Poplar 1/8 to 5/16 in.

CINCINNATI, OHIO, U. S. A.

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OAK
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**Walter Clark Veneer Co.**
Grand Rapids - Mich.

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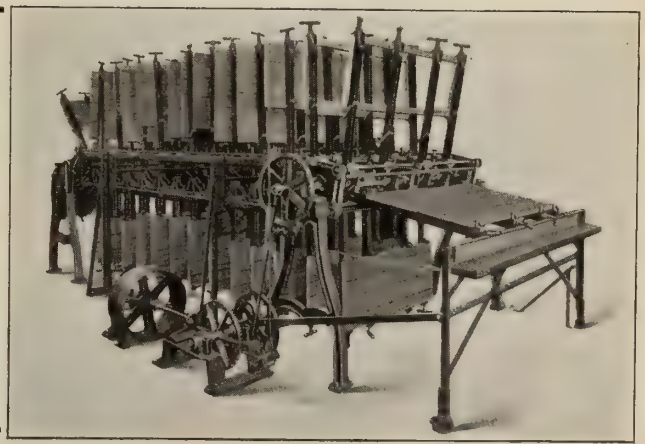
The advantages, conveniences and good points of this machine should be investigated by modern wood-working establishments.

**The Billstrom Automatic Glue Clamp Carrier**

modernizes the glue department thoroughly. The many dollars lost in the average glue room will help pay for this machine. One user said he would not be without it for many times its cost. Facts with complete particulars and description will help your investigation.

We have over 170 machines in operation.

**Nels J. Billstrom, 1315 Tenth St., Rockford, Ills.**



# From Coast to Coast

### Boom Carried Away

The flood carried away the boom established at 6-Miles Island near Grand Falls by the St. John River Log Driving Company to hold over logs which were late in coming out until fall or until next spring. There were upwards of two million feet of logs in the boom and these logs are now coming down the river and will be handled at the Douglas and Mitchell booms here.

The Messrs. Aitken, contractors on the corporation drive between Grand Falls and the boom limits, thought they had finished work when they brought their clean-up drive to the boom limits the last of the week, but to-day they received orders that on account of the boom at 6-Miles Island breaking away and owing to the unusual rise of water they would have to resume driving again and they are starting work once more.

### 50,000 Logs Being Sorted and Cribbed at Nogeys Creek Camp

The John Carew Lumber Company's camp at Nogey's Creek, north of Bobcaygeon, Ont., presented a very busy scene when visited by a party comprising Messrs. John Carew, S. Clegg, assistant superintendent of the Trent Valley Canal, Frank Carew and Allan Gillies..

At the present time some twenty men are engaged at the camp, although a week ago there were over thirty. The logs, over 50,000, are being sorted and cribbed, and will soon be in readiness to tow to the mill. The timber is chiefly composed of cedar, basswood, hemlock, pine and spruce, which was secured from Swamp and Bass Lakes and from Nogey's Creek.

### Piano Actions and Keys Go Up

The piano and organ manufacturers have been notified by the supply houses of an advance in prices of actions and keys, which became effective on July 1st. There is probably no time at which notification of advanced prices is received with a smiling welcome nevertheless in view of existing conditions this increase in cost of actions and keys comes as no surprise. This is the first advance in action and key prices in years, and the supply houses claim is not sufficient to recoup them for the extra cost of raw material and labor.

### Fatal Fire in Dundas Factory

Fireman James Smith of Dundas, Ont., was killed, and damage amounting to more than $30,000 was caused in a fire at Jones Brothers' factory there.

Smith was one of the oldest firemen in Dundas. He had been laid up with a bad cold for several days, and was advised by his doctor not to leave his home, but when the fire broke out he joined the brigade and was soon on the scene. He was working on the roof of the factory when he was overcome by the heavy smoke, and fell into the ruins, dying almost immediately.

The fire started in the factory where the showcases are made, and spread rapidly. The damage is covered by insurance.

The head office of the Jones Bros.' factory is in Toronto.

### Lumber Yard Fire Quickly Extinguished

Fire broke out in a lumber shed located in the yards of the Vancouver Lumber Company, but the response to the alarm was so quick that the blaze did not become dangerous at any time.

### Lumbermen's Convention

Lumbermen from the east are going to visit Victoria, B.C., during the first week in September, in order to discuss the new act respecting forestry now in force in British Columbia. The act demands that lumbermen take more care during their operations, and they must reduce the present waste considerably. The system of fire protection has been enlarged. The economic utilization of lumber will also be fully discussed during the convention.

### Toronto Lumber Merchant Dead

George W. Johnson, a lumber merchant of Toronto, dropped dead at the corner of John and Front streets. He had suffered for some time past with heart trouble and was on his way home from his office when death occurred. He was about 65 years of age.

### Crushed in a Pulley

Erward J. Hayes, of Peterborough, was instantly killed in the lath mills of the Peterboro' Lumber Company. He was foreman of this department, and, in putting an eighteen-inch belt on a two-foot pulley, used, as is the custom, a rope which proved to be too long. Hayes was caught in the slack of the rope and drawn into the pulley, and so badly crushed that death was instantaneous. Robert Shearer, the general foreman, was present, and was also caught in the rope, but, clutching a post, escaped being drawn into the pulley, though he was severely injured. Deceased was sixty-three years of age, and had been for forty years connected with the mills.

### Sash and Door Factory Fire

Fire did between $20,000 and $25,000 damage to Peck & Wills' sash and door factory, of Belleville, Ont., on August 11. The factory was a large frame structure in the centre of the city. How the fire originated cannot be determined, as it appears to have started in the rear, where no one was working at the time. The plant was run by electricity. Some believe the cause was an overheated shaft. When noticed the fire had secured considerable headway and was spreading very rapidly through the factory, which was filled with lumber and shavings. In a few minutes after the alarm was sounded the whole structure was ablaze and no hopes were entertained of saving anything. Mr. Wills, one of the proprietors, had his hair and moustache badly singed in rescuing books from the vault.

A large quantity of lumber was burned in the factory yard. The brigade was kept busy for hours.

The building and machinery were owned by Alderman Walter Alford, contractor, who formerly conducted the factory before the present proprietors took charge a number of years ago. Very little insurance was carried on the stock or plant on account of the high tariff on the risk. The losses to the owners will be very heavy in consequence.

# OPPORTUNITIES

**Advertisements inserted on this page for "Positions Vacant" or "Positions Wanted" twenty-five cents per insertion.**

### Killed by Live Wire Unloading Lumber

While unloading lumber at Conklin's Mill near Kingsville William Garry, of Tilbury, was instantly killed when he struck the electric wire of the W. E. and L. S. Railway with his chin. He was 21 years of age and single.

### Young Man Killed by Bursting Wheel

Moncton, N.B.—A young man named John Dunn, aged 26, was instantly killed at Ford's Mill, Kent County. The saw mill owned by a Mr. McWilliams was working as usual, when the large flywheel suddenly burst into fragments, one of which struck Dunn, killing him instantly. Parts of the wheel flew in different directions, some going through the roof, damaging the building to a considerable extent.

### Brantford's Industrial Expansion

A survey was made at Brantford, Ont., of 120 acres of land in Helmsdale district belonging to the waterworks department. The land will be distributed for industrial purposes, several deals for new factories being now pending.

Mr. Black, Hespeler, Ont., has just finished a most successful season's cut of lumber with his portable mill, sawing in all nearly 175,000 feet of lumber and 400 square shingles.

His mill was kept in operation in the woods at Hogg's swamp and near Clyde for the past several months.

### The United States Centre of Population

The exact centre of the population of the United States is under the windows of the large plant of the Showers Bros. Co., furniture manufacturers, Bloomington, Ind. A tablet erected on the spot carries a tall flag pole bearing the American flag and a flag which says "Centre of Population, U.S.A." The plant itself, which has nearly seven acres of floor space, is protected in all departments by a complete equipment of Grinnell automatic sprinklers. There are 3063 sprinkler heads supplied with water by a 50,000 gal. tank on a 75-ft. steel tower. There is also connection to the city water and there are Siamese steamer connections through which the fire department can pump water into the sprinkler system. The treasurer of the company says "Our saving in insurance premiums alone paid for this system in twenty-eight months."

## WANTED

A lumberman or practical builder with 5 to 10 thousand dollars. A rare opportunity for a man of ability of either kind.

**Box 44, City Heights, Vancouver, B.C.**

**Manufacturers** Know that good work depends to a great extent upon good workmen. If you wish to get in touch with this class of men insert your want ad. on this page—the best men in the woodworking trade read it.

Wanted at once, factory carpenters and cabinet-makers, also two good woodturners for Sash, Door and Fixture factory. Only strictly temperate, first-class men need apply. Large modern factory, open shop, no trouble. Apply stating wages, experience, etc., to The Western Mfg. Co., Ltd., Regina, Sask.

"Forman wanted for furniture factory, to take charge of from 25 to 30 men. Apply stating fully experience, salary asked, and age to Box No. 10 Canadian Woodworker."

"We offer the following machinery in good repair for sale cheap;—

1, 24-in. 2 Drum Fay Sander.
1 6-ft. Moore Stroke Sander.
1, 76 x 30 Power Veneer Press.
Several 50 x 26 Screw Veneer Presses.

Apply, Hay & Company, Woodstock, Ont."

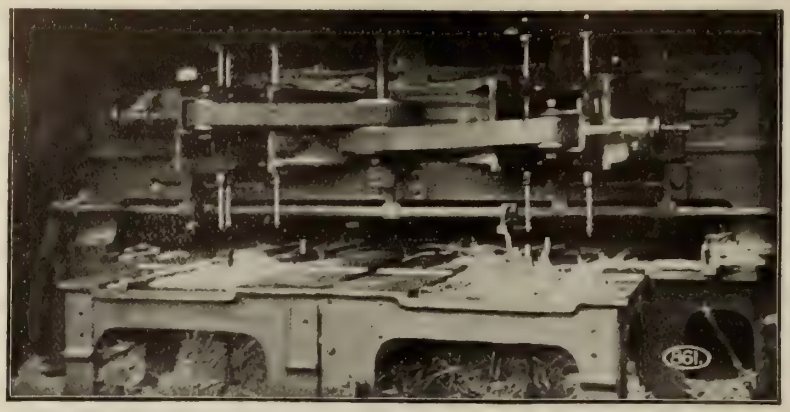
## Furniture and Show Case Manufacturers and Builders

## ATTENTION

We carry in stock a full line of Hardware Specialties for the manufacture of Show Cases, Counters etc., Furniture and Cabinets, Sash and Doors.

Our Catalog illustrates our numerous specialties and is complete with prices. Send us your name and address so we may send you one. We can very probably save you money on your present purchases.

**The Reflector & Hardware Specialty Mfg. Co.**
Western Ave. and Twenty Second Place, Chicago, Ill.

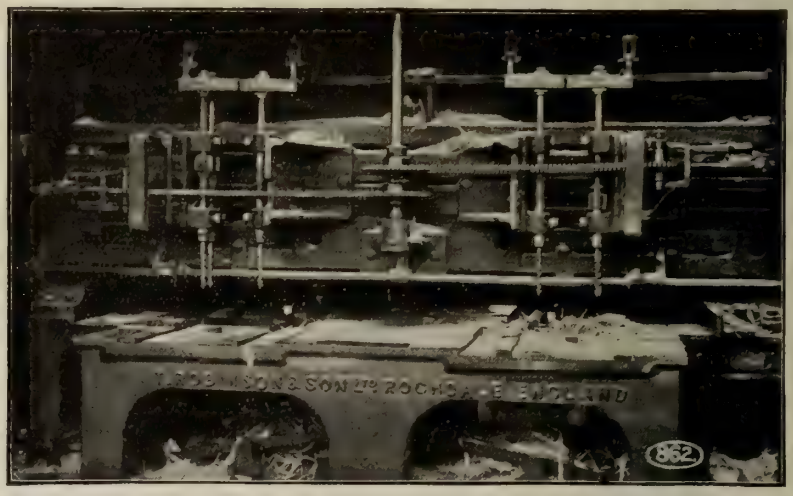


# Renold Patent Steel Driving Chains

**OVERCOME TRANSMISSION TROUBLES**

Upper illustration shows leather belts driving an adzing and boring machine. Trouble was experienced with the belts.

The lower cut shows the same machine equipped with RENOLD CHAINS which not only overcame the trouble but increased the production over 30% and resulted in the users equipping in a similar manner all their machines.



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Until a king be by.
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**is the King of all Babbitt Metals**

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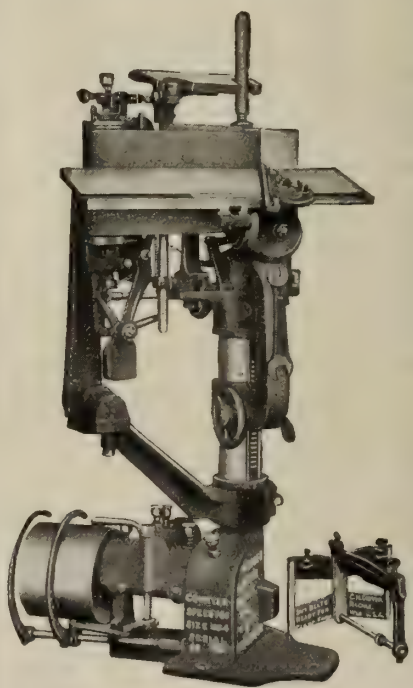

Chicago, Ill., Jan. 20/12.
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Racine, Wis.

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Will you please send us cuts with full information and your very lowest cash price on "The Little Wonder Sander."

We have had one of your machines in operation in our factory for about nine years, but presume that you have made changes and improvements since then and of course we want one of the latest improved.

Your prompt reply will greatly oblige,

Very truly yours,
PRICE & TEEPLE PIANO CO

Since the above inquiry we have received their second order. This Sander is especially adapted for Piano Manufacturing, it is the only Combination, Reciprocating Belt and Spindle Sander, it covers a larger range of sanding than any other sander, it has proven to be a great Money Maker in all lines of manufacturing.

Write us for complete description

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# Thomas White & Sons, Ltd. Engineers Paisley, Scotland

Telegrams :—White, Paisley
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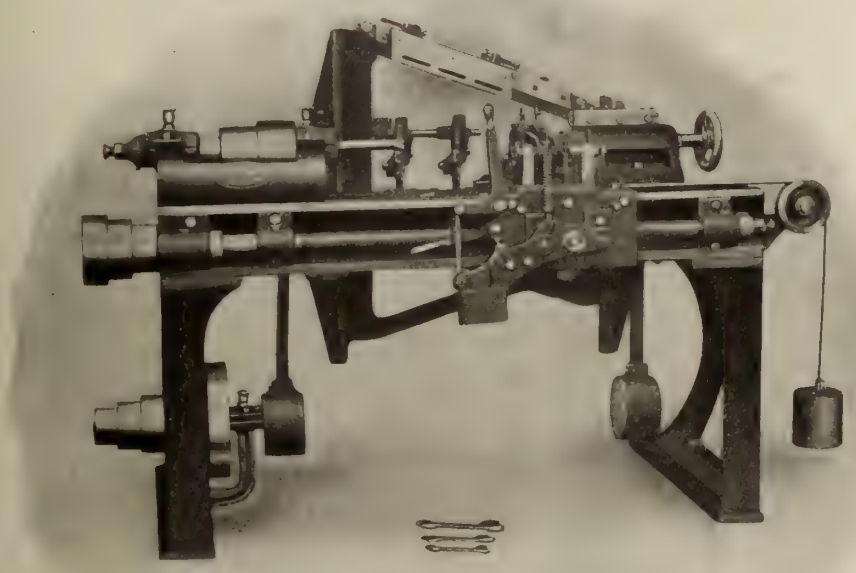

1911 DESIGN

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### Back Knife Lathe

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Just Re-designed.

Made in 5 Sizes, turning up to 6 in. Squares.

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**Greater Accuracy. OUTPUT 3 to 4 times greater.**

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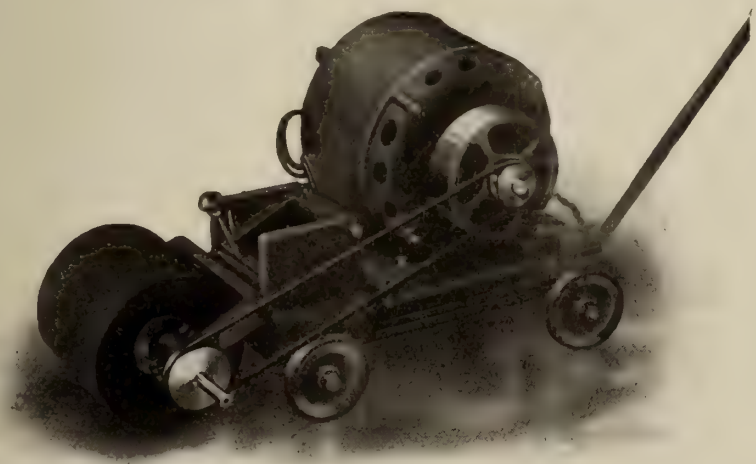
**RUNS BY ANY CURRENT**

**For Sanding and Polishing Hardwood Floors**



**The Elliot Scroll Saw and Shaper**
cuts 2 in. thick runs by any ¼ or ½ horse motor or any power drive. The shaper can be set up in five minutes.

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MANUFACTURERS OF THE ELLIOT WOODWORKER

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Chicago Machinery Exchange, Chicago, Ill.
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### BENDING MACHINES.
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Sadler & Haworth, Montreal.

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### BLOW PIPING.
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Chicago Machinery Exchange, Chicago, Ill.
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Valley City Machine Works, Grand Rapids, Mich.
H. W. Petrie, Ltd., Toronto.

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### BROKEN CASTINGS BRAZED — MACHINIST AND DIE MAKER.
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Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Valley City Machine Works, Grand Rapids, Mich.
Baxter D. Whitney & Son, Winchendon, Mass.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

### CARS (transfer).
Sheldons, Ltd., Galt, Ont.

### CARVING MACHINES.
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Canada Machinery Agency, Montreal.
Chicago Machinery Exchange, Chicago, Ill.
J. A. Fay & Egan Co., Cincinnati, O.
Hespeler Machinery Co., Ltd., Hespeler Ont.
Valley City Machine Works, Grand Rapids, Mich.

### CHISELS.
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J. A. Fay & Egan Co., Cincinnati, O.

### CIRCULAR SAW MILLS.
Canada Machinery Agency, Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
H. W. Petrie, Ltd., Toronto.

### CHAINS (Silent).
Jones & Glassco, Montreal.

### CLAMPS (Chain, Carpenter, Cabinet, Pattern Makers, Bench, Mitre, Piling, Mounted and Rotary Wheel).
Black Bros. Machinery Co., Mindota, Ill.
J. A. Fay & Egan Co., Cincinnati, O.

### CLAMPS (Saw).
Shurly Dietrich Co., Ltd., Galt, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

### CLUTCHES.
J. A. Fay & Egan Co., Cincinnati, O.

### COLUMN CLAMPS.
Black Bros. Machinery Co., Mendota, Ill.

### COLUMN MACHINERY.
Chicago Machinery Exchange, Chicago, Ill.
J. A. Fay & Egan Co., Cincinnati, O.
C. Mattison Machine Works, Beloit, Wis.

### CORE BOX MACHINES.
J. A. Fay & Egan Co., Cincinnati, O.
Chicago Machinery Exchange, Chicago, Ill.
E. & B. Holmes Machinery Co., Buffalo, N.Y.

### CUT-OFF SAWS.
Canada Machinery Corporation, Ltd., Galt, Ont.
Shurly Dietrich Co., Ltd., Galt, Ont.
Chicago Machinery Exchange, Chicago, Ill.
Berlin Machine Works, Ltd., Hamilton,
Simonds Canada Saw Co., Montreal.
R. H. Smith C., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Ober Mfg. Co., Chagrin Falls, O.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

### CUTTER HEADS.
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Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
C. Mattison Machine Works, Beloit, Wis.
Samuel J. Shimer & Sons, Milton, Pa.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

### DADO HEADS.
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W. A. Elliott, Bathurst and College Sts., Toronto.

### DIEMAKERS & MACHINISTS
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J. A. Fay & Egan Co., Cincinnati, O.

### DOGS (Saw Mill).
J. A. Fay & Egan Co., Cincinnati, O.

### DOVETAILING MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
Chicago Machinery Exchange, Chicago, Ill.
Canada Machinery Corporation, Ltd., Galt, Ont.
Canadian Linderman Machine Co. Ltd., Woodstock, Ont.
J. A. Fay & Egan Co., Cincinnati, O.

### DOWEL MACHINES.
Thos. White & Sons, Paisley, Scotland.
Canada Machinery Corporation, Ltd., Galt, Ont.
Chicago Machinery Exchange, Chicago, Ill.
J. A. Fay & Egan Co., Cincinnati, O.
Ober Mfg. Co., Chagrin Falls, O.
Valley City Machine Works, Grand Rapids, Mich.

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Sheldons, Ltd., Galt, Ont.
Morton Dry Kiln Co., Chicago, Ill.

### DRY KILNS.
Sheldons, Ltd., Galt, Ont.
Morton Dry Kiln Company, Chicago, Ill.

### DUST COLLECTORS.
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### DUST SEPARATORS.
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### EDGERS (Gang).
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Chicago Machinery Exchange, Chicago, Ill.
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J. A. Fay & Egan Co., Cincinnati, O.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

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Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
Simonds Canada Saw Co., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, O.

END MATCHING MACHINE.
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Canada Machinery Corporation, Ltd., Galt, Ont.
Ont.
Canada Machinery Agency, Montreal.
Chicago Machinery Exchange, Chicago, Ill.
J. A. Fay & Egan Co., Cincinnati, O
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

ENGINES (Steam).
H. W. Petrie, Ltd., Toronto.

EXHAUST FANS.
Sheldons, Ltd., Galt, Ont.

FLOORING MACHINES.
Berlin Machine Works, Ltd., Hamilton.
Canada Machinery Agency, Montreal.
Chicago Machinery Exchange, Chicago, Ill.
J. A. Fay & Egan Co., Cincinnati, O.
Canada Machinery Corporation, Ltd., Galt, Ont.
Baxter D. Whitney & Son, Winchendon, Mass.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

FLINT.
Wausau Quartz Co., Wausau.

FLUTING HEADS.
J. A. Fay & Egan Co. ,Cincinatti, O.

GAINING MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
Chicago Machinery Exchange, Chicago, Ill.
J. A. Fay & Egan Co., Cincinatti, O.
C. Mattison Machine Works, Beliot, Wis.
Canada Machinery Corporation, Ltd., Galt, Ont.
H. W. Petrie Co., Ltd., Toronto.

GAS ENGINES.
H. W. Petrie, Ltd., Toronto.

GAUGES (Saw).
Shurly Dietrich Co., Ltd., Galt, Ont.
Simonds Canada Saw Co., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

GLUE CLAMPS.
Black Bros. Machinery Co., Mendota, Ill.
H. W. Petrie, Ltd., Toronto.

GLUE HEATERS.
J. A. Fay & Egan Co., Cincinnati, O.

GLUE JOINTERS
Canada Machinery Corporation, Ltd., Galt, Ont.
Canadian Linderman Co., Ltd., Woodstock, Ont.
Chicago Machinery Exchange, Chicago, Ill.

GLUE SPREADERS.
Chicago Machinery Exchange, Chicago, Ill.
J. A. Fay & Egan Co., Cincinnati, O.

GRINDERS (Cutter).
J. A. Fay & Egan Co., Cincinnati, O.

GRINDERS (Knife, etc.).
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Chicago Machinery Exchange, Chicago, Ill.
J. A. Fay & Egan Co., Cincinnati, O.
T. A. J. Burton Saw Co., Ltd., Vancouver, B.C.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

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J. A. Fay & Egan Co., Cincinnati, O.
Valley City Machine Works, Grand Rapids, Mich.

GROOVING HEADS.
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C. Mattison Machine Works, Beloit, Wis.
Samuel J. Shimer & Sons, Milton, Pa.
Canada Machinery Corporation, Ltd., Galt, Ont.

HAND PROTECTORS.
Chicago Machinery Exchange, Chicago, Ill.
J. A. Fay & Egan Co., Cincinnati, O.
Jones Safety Device Co., Hamilton, Ont.

HAND SCREWS.
Black Bros. Machinery Co., Mendota, Ill.
J. A. Fay & Egan Co., Cincinnati, O.

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Chicago Machinery Exchange, Chicago, Ill.
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Ober Mfg. Co., Cragrin Falls, O.
Baxter D. Whitney & Son, Winchendon, Mass.

HUB MACHINERY.
Chicago Machinery Exchange, Chicago, Ill.
J. A. Fay & Egan Co., Cincinnati, O.

INJECTORS.
H. W. Petrie, Ltd., Toronto.

JOINTERS.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Canadian Linderman Co., Ltd., Woodstock, Ont.
Chicago Machinery Exchange, Chicago, Ill.
J. A. Fay & Egan Co., Cincinnati, O.
Plessisville Foundry, Plessisville, Que.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

KNIVES (Planers and Others).
Shurly Dietrich Co., Ltd., Galt, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Samuel J. Shimer & Sons, Milton, Pa.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
H. W. Petrie, Ltd., Toronto.

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Sadler & Haworth, Montreal.

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Canada Machinery Corporation, Ltd., Galt, Ont.
Chicago Machinery Exchange, Chicago, Ill.
J. A. Fay & Egan Co., Cincinnati, O.
Valley City Machine Works, Grand Rapids Mich.
H. W. Petrie, Ltd., Toronto.
Thos. White & Sons, Paisley, Scotland.

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Berlin Machine Works, Ltd., Hamilton. Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Chicago Machinery Exchange, Chicago, Ill.
J. A. Fay & Egan Co., Cincinnati, O.
C. Mattison Machine Works, Beloit, Wis.
Ober Mfg. Co., Chagrin Falls, O.
Valley City Machine Works, Grand Rapids, Mich.
Baxter D. Whitney & Son, Winchendon, Mass.
H. W. Petrie, Ltd., Toronto.

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Canada Machinery Corporation, Ltd., Galt, Ont.

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LUMBER.
Elgie & Jarvis, Toronto.

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E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

MITRE SAWS.
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E. C. Atkins & Co., Hamilton, Ont.
Chicago Machinery Exchange, Chicago, Ill.
J. A. Fay & Egan Co., Cincinnati, O.
Canada Machinery Corporation, Ltd., Galt, Ont.
Simonds Canada Saw Co., Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
E. & B. Holmes Machinery Co., Buffalo N.Y.
H. W. Petrie, Ltd., Toronto.

MITRE CLAMPS.
Black Bros. Machinery Co., Mendota, Ill.
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H. W. Petrie, Ltd., Toronto.

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Chicago Machinery Exchange, Chicago, Ill.

PLANES.
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Hespeler Machinery Co., Ltd., Hespeler Ont.

PLANERS.
Berlin Machine Works, Ltd., Hamilton Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Chicago Machinery Exchange, Chicago, Ill.
J. A. Fay & Egan Co., Cincinnati, O.
Baxter D. Whitney & Son, Winchendon Mass.
E. & B. Holmes Machinery Co., Buffalo N.Y.
H. W. Petrie, Ltd., Toronto.

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Canada Machinery Corporation, Ltd., Galt, Ont.
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C. Mattison Machine Works, Beloit, Wis.
Samuel J. Shimer & Sons, Milton, Pa.
Baxter D. Whitney & Son, Winchendon, Mass.
Black Bros. Machinery Co., Mendota, Ill.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie Co., Ltd., Toronto.

PULLEYS.
Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinatti, O.

QUARTZ.
Wausau Quartz Co., Wausau.

RESAWS.
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Canada Machinery Corporation, Ltd., Galt, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Chicago Machinery Exchange, Chicago, Ill.
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The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinatti, O.

RESAWS
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J. A. Fay & Egan Co., Cincinnati, O.
Canada Machinery Corporation, Ltd., Galt, Ont.

RIP SAWING MACHINES.
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J. A. Fay & Egan Co., Cincinnati, O.
Ober Mfg. Co., Chagrin Falls, O.
Canada Machinery Corporation, Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

SAFETY GUARDS (For Band Saw Machines, Jointers, Rip Sawing Machines, Shapers, Swing Saws, etc.).
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Fair Manufacturing Company, Racine, Wis.

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Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
J. M. Nash, Milwaukee, Wis.
Ober Mfg. Co., Chagrin Falls, O.
Fisher Sander Co., Berlin, Ont.
Black Bros. Machinery Co., Mendota, Ill.
H. W. Petrie, Ltd., Toronto.

SAND.
Wausau Quartz Co., Wausau.

SANDPAPER.
Black Bros. Machinery Co., Mendota, Ill.

SANDERS (Moulding, Belt and Panel).
Black Bros. Machinery Co., Mendota, Ill.
Chicago Machinery Exchange, Chicago, Ill.
H. W. Petrie, Ltd., Toronto.

SASH, DOOR, INTERIOR TRIM AND COLUMNS
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Samuel J. Shimer & Sons, Milton, Pa.
Black Bros. Machinery Co., Mendota, Ill.
H. W. Petrie, Ltd., Toronto.

SAWS (Hand).
Shurly Dietrich Co., Ltd., Galt, Ont.
E. C. Atkins & Co., Hamilton, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
Simonds Canada Saw Co., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, O.

SAW MILL MACHINERY.
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
H. W. Petrie, Ltd., Toronto.

SAW SWAGES, AUTOMATIC FILERS.
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Chicago Machinery Exchange, Chicago, Ill.
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J. A. Fay & Egan Co., Cincinnati, O.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

SAW TABLES.
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Chicago Machinery Exchange, Chicago, Ill.
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

SCRAPING MACHINES.
Baxter D. Whitney & Son, Winchendon, Mass.
Chicago Machinery Exchange, Chicago, Ill.

SCROLL SAWS.
Canada Machinery Corporation, Ltd., Galt, Ont.
Chicago Machinery Exchange, Chicago, Ill.
Shurly Dietrich Co., Ltd., Galt, Ont.
E. C. Atkins & Co., Hamilton, Ont.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.

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Chicago Machinery Exchange, 1219-1227 Washington Blvd., Chicago, Ill., U.S.A.
H. W. Petrie, Ltd., Toronto.

SHAPERS.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Chicago Machinery Exchange, Chicago, Ill.
Ober Mfg. Co., Chagrin Falls, O.
Samuel J. Shimer & Sons, Milton, Pa.
Baxter D. Whitney & Son, Winchendon, Mass.
H. W. Petrie, Ltd., Toronto.

SHAVING COLLECTORS.
Sheldons, Ltd., Galt, Ont.

SINGLE SPINDLE BOXING MACHINES.
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J. A. Fay & Egan Co., Cincinnati, O.
Ober Mfg. Co., Chagrin Falls, O.

STAVE SAWING MACOINE.
Baxter D. Whitney & Son, Winchendon, Mass.

STORE FIXTURES, FITTINGS
Reflector & Hardware Specialty Mfg. Co. Chicago, Ill.

SURFACERS.
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Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
Baxter D. Whitney & Son, Winchendon, Mass.
Chicago Machinery Exchange, Chicago, Ill.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

SWING SAWS.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Chicago Machinery Exchange, Chicago, Ill.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
Ober Mfg. Co., Chagrin Falls, O.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

TABLE LEG LATHES.
Berlin Machine Works, Ltd., Hamilton, Ont.
Chicago Machinery Exchange, Chicago, Ill.
Thos. White & Sons, Paisley, Scotland.
J. A. Fay & Egan Co., Cincinnati, O.
C. Mattison Machine Works, Beloit, Wis.
Ober Mfg. Co., Chagrin Falls, O.
Baxter D. Whitney & Son, Winchedon, Mass.

TENONING MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Chicago Machinery Exchange, Chicago, Ill.
J. A. Fay & Egan Co., Cincinnati, O.
H. W. Petrie, Ltd., Toronto, Ont.

TOOLS (Hand).
J. A. Fay & Egan Co., Cincinnati, O.
Samuel J. Shimer & Sons, Milton, Pa.

TRIMMERS.
Berlin Machine Works, Ltd., Hamilton.
Canada Machinery Corporation, Ltd., Galt, Ont.
Chicago Machinery Exchange, Chicago, Ill.
J. A. Fay & Egan Co., Cincinnati, O.

TRUCKS.
Canada Machinery Corporation, Ltd., Galt, Ont.
Chicago Machinery Exchange, Chicago, Ill.
Sheldons, Ltd., Galt, Ont.

TURNING MACHINES.
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, O.
C. Mattison Machine Works, Beloit, Wis.
Canada Machinery Corporation, Ltd., Galt, Ont.
Chicago Machinery Exchange.
Ober Mfg. Co., Chagrin Falls, O.
Baxter D. Whitney & Son, Winchendon, Mass.
H. W. Petrie, Ltd., Toronto.

UNDER-CUT SELF-FEEDING FACE PLANER.
J. A. Fay & Egan Co., Cincinnoti, O.
Canada Machinery Corporation, Ltd., Galt, Ont.
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GUMMERS, ETC.
E. C. Atkins & Co., Hamilton, Ont.
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UNIVERSAL WOODWORKER PLANER.
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VENEER DIERS.
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VENEER PRESSES (Hand and Power).
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Shurly Dietrich Co., Ltd., Galt, Ont.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, O.
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H. W. Petrie, Ltd., Toronto.

VISES (Pattern Makers').
J. A. Fay & Egan Co., Cincinnati, O.

VISES (Circular Saws).
E. C. Atkins Co., Hamilton.
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The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
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WAGON AND CARRIAGE MACHINERY.
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Ober Mfg. Co., Chagrin Falls, O.
Baxter D. Whitney & Son, Winchendon, Mass.

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Smith & Phillips Mfg. Co., Chicago, Ill.

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The Most Perfect Dry Kiln on the Market

The "Morton" has a reputation for drying oak, maple, birch and beech quicker and better and with less steam than any other method—excepting none.

Write for our New Catalog "W"

**Morton Dry Kiln Co., Chicago, Ill.**

If you only knew, you would not **waste** money by throwing away your

## BROKEN CASTINGS

But would send them to me to be brazed and made as strong at break as other part.

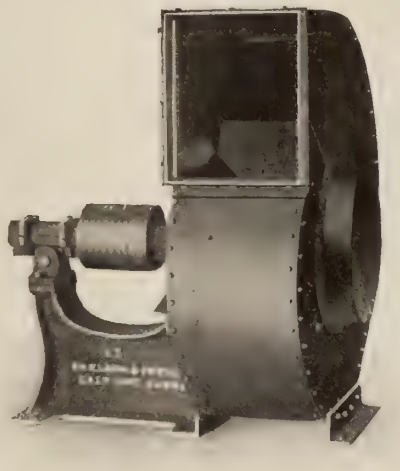
I am now doing this class of work with unqualified success. Positively guaranteeing each joint. A trial will convince you.

Send me a sketch if break is in gear or circle casting and I will advise you.

**W. H. DUNNE, 1492 Queen St., West, Toronto**

Long Distance Phone Park 420

## Prominent Features of Sheldon Slow Speed Shaving Exhaust Fans



Slower Speed over ordinary Fans. Saving in Power and Speed of 25% to 40%.

Special Taper Inlet which prevents clogging of Wheel and minimize wear of Fan Blades.

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**Toronto Office, 609 Kent Building**

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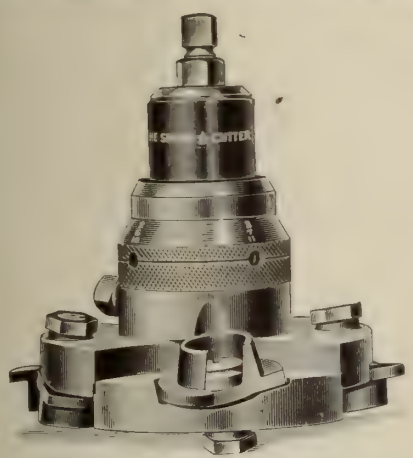
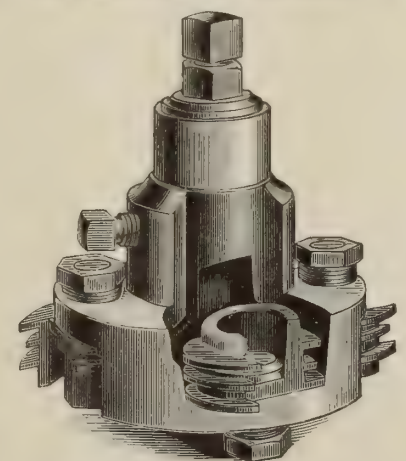
# LABOR and TIME-SAVING TOOLS



### Popular Matching Heads

Figs. 202 and 203 are the leading tools for matching flooring, ceiling, etc., for feeds up to 150 lineal feet per minute. They are made with four, six or eight Bits to each Head according to the machine to be used upon, material to be worked, and the rate of feed desired. Price per set with 4 Bits to each Head, only $40.95.

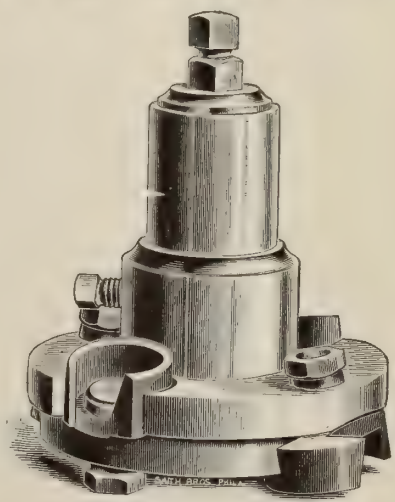


### Double Ceiling Heads

The Shimer Cutter Heads for matching Ceiling in double thickness to be re-sawed into marketable strips, will double the capacity of any matcher or moulder.

These tools are very complete and are giving satisfaction in a large number of mills.

Price per set complete, only $40.94.



### Heads for Making Ship Lap

The Shimer Cutter Heads for Ship Lap are so proportioned in the Bits and their seats that a perfect draw cut is made. They work interchangeably with our matcher Heads and always produce good work.

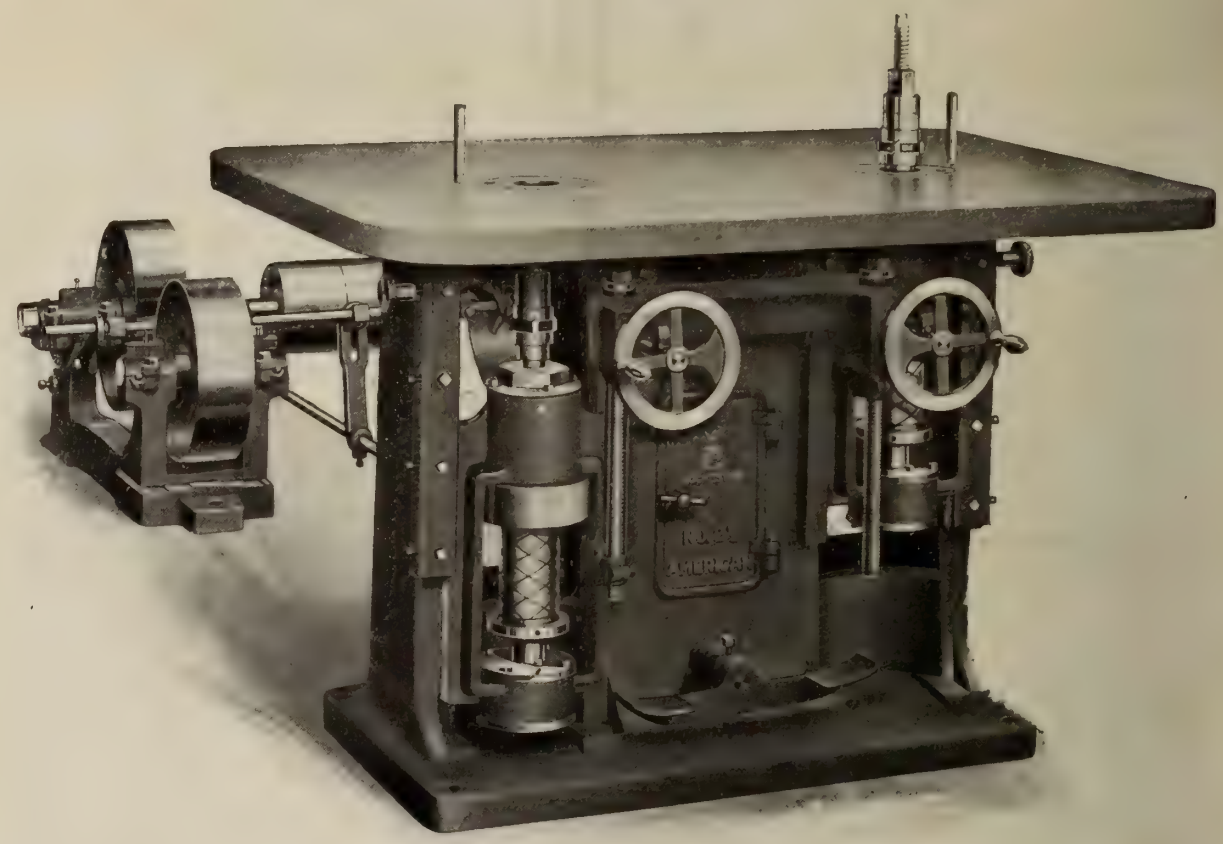
Price per set, complete, $33.64 to $38.45 according to thickness of cut. Bits for making Wainscoting on these Heads $1.95.

**These Tools are turned out of Solid Steel Forgings—have the Shimer "make-ready" which saves you all the fitting and trying—keep your work up to the standard.**

FOR FURTHER PARTICULARS ADDRESS

**SAMUEL J. SHIMER & SONS, GALT, ONT., CAN. Branch at Milton, Pa.**

# The American High Speed Ball Bearing Shaper



Running at the rate of 7200 revolutions per minute and with absolutely no vibration, produces the finest work obtainable on a Shaper.

High Speed is absolutely essential to fine and accurate cutting—you have it in an American Ball-Bearing machine.

We haven't discarded the taper bronze bush; you can have an American Shaper built that way if you wish, but we'll tell you frankly that the Ball-Bearings are better.

Write our nearest sales-office for price and further information.

SALES OFFICES:
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**American Wood Working Machinery Co.**

Executive and General Sales Office
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314 W. Pacific. Ave.
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46 Fremont Street

CANADIAN WOODWORKER

Toronto, September, 1912

IF every piece of lumber you plane were alike in size, quality and condition, planing would be simplified, but as it is you need a planing machine which will automatically overcome any natural irregularities of your stock and produce uniformly good surfacing.

# A Whitney Planer

double or single surfacer, will stand the hardest kind of wear and tear and rough use—it will plane any lumber brought to it, warped, twisted, knotty, unevenly sawed or of varying thickness—it will do better surfacing and more of it than any other planer made.

Therein lies the economy of installing a Whitney Planer. Talk it over with us.

Whitney Planers are equipped with square cylinders and two or four ordinary knives, or with the Whitney round Cylinder and four thin high speed steel knives.

## Baxter D. Whitney & Son

**Winchendon :: Massachusetts**

Pacific Coast Sales Department: H. H. Plummer, Mgr.
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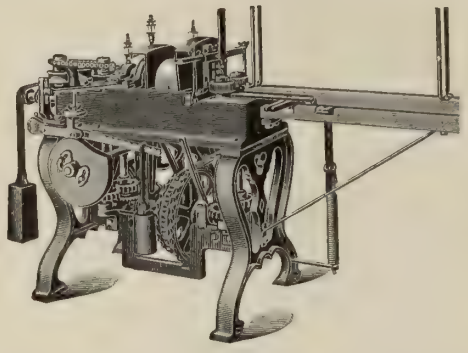
This is a Cut of the

# No. 10 Ober Lathe



for turning Fork, Hoe, Rake, Mop, Broom and Ice Hook Handles, Pike Poles, Tent Poles Trolley Poles, Curtain Poles, Chair Bows, Dowels, Rods and similar work.

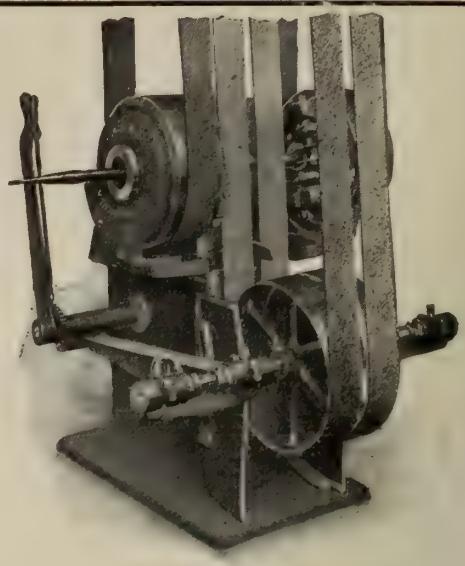
**Simple Strong Durable Economical**

We also manufacture other lathes for making Spokes, Handles and Variety Work, Sanders, Shapers, Boring and Chucking Machine, etc.

Complete Catalogue and Price List Free.

## The Ober Mfg. Co.

**31 Bell St., CHAGRIN FALLS, Ohio., U. S. A.**



# The Sanding of Plain Round Work

is most economically and perfect y done on the **Nash Sanders.**

**Saving in cost of Sanding = 85%**
**Improvement in Product = 50%**

## J. M. NASH, Milwaukee, Wis.

# The M. Brennen & Sons Mfg. Co., Limited

LUMBER DEALERS PLANING MILL

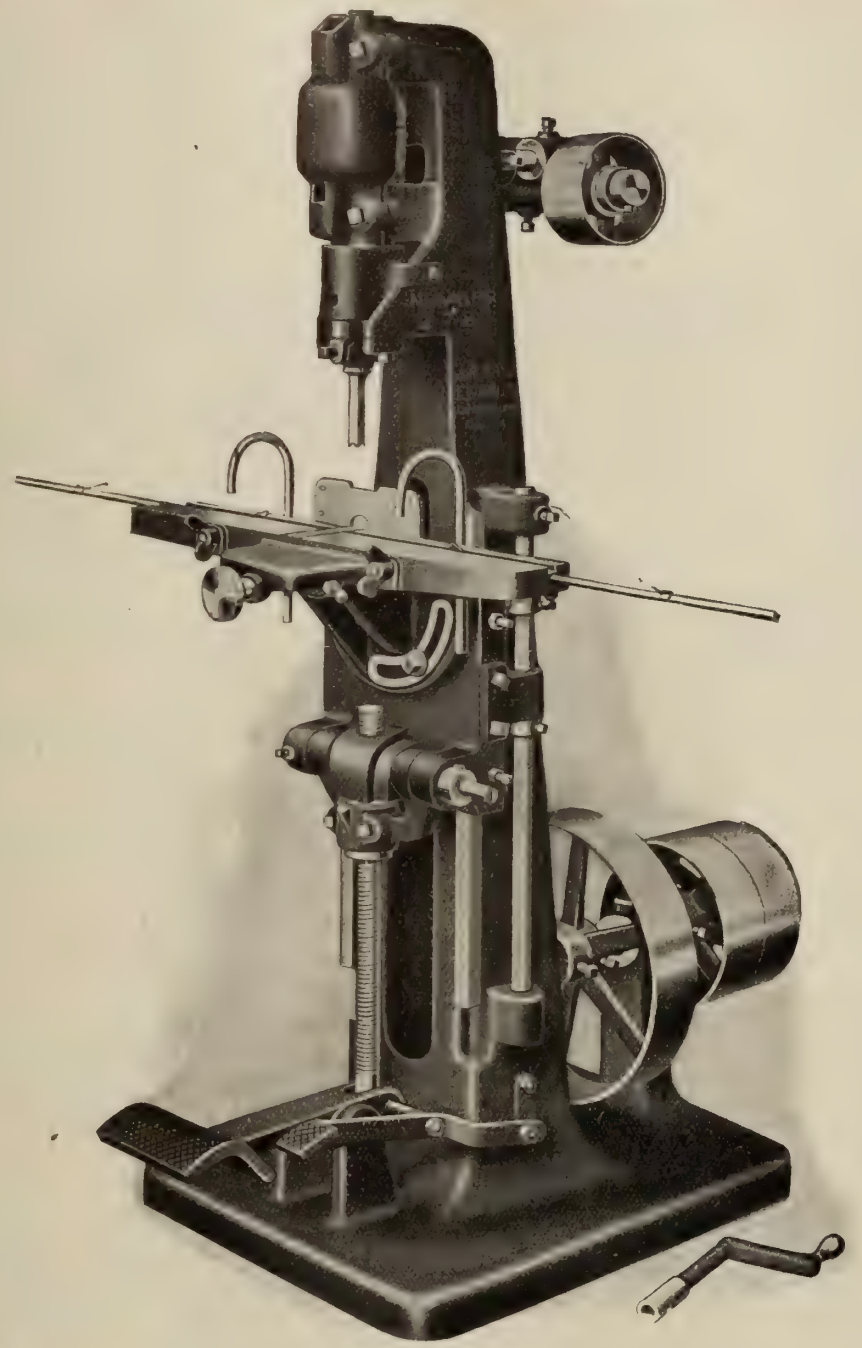
Manufacturers of Doors, Frames, Sash, etc.
Trim and all kinds of Mouldings

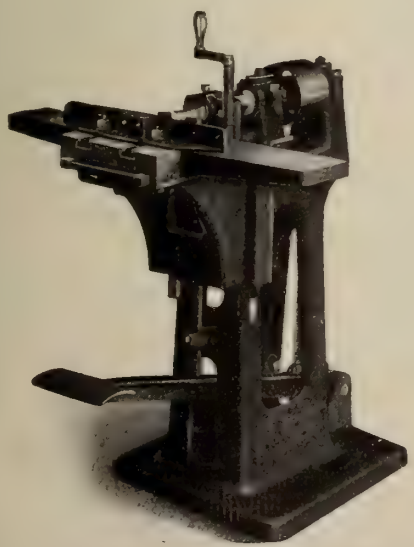
*Detail Work a Spe ialty*

## Rough and Dressed Lumber, Lath and Shingles

We are always glad to Furnish Estimates.
Prompt delivery our Specialty.
Write for Price Lists.

**Box 107 HAMILTON, ONT.**





FAY-EGAN " LIGHTNING "

# No. 272 Hollow Chisel Mortiser

Makes perfect mortises; no chips to clean out; entirely self-contained; takes up small space; uses but little power; easy and simple to operate; works smoothly—no pounding or jarring.

Automatic disappearing stops eliminating the necessity of marking off stock for duplicate work. Mortises up to ¾ inch square and 3 inches deep, by reversing, 6 inches.

**Small cut shows No. 270—similar type—horizontal chisel.**

*Write for illustrations and descriptions*

## J. A. FAY & EGAN CO.,

**Manufacturers of Woodworking Mach'y—The "LIGHTNING" Line**

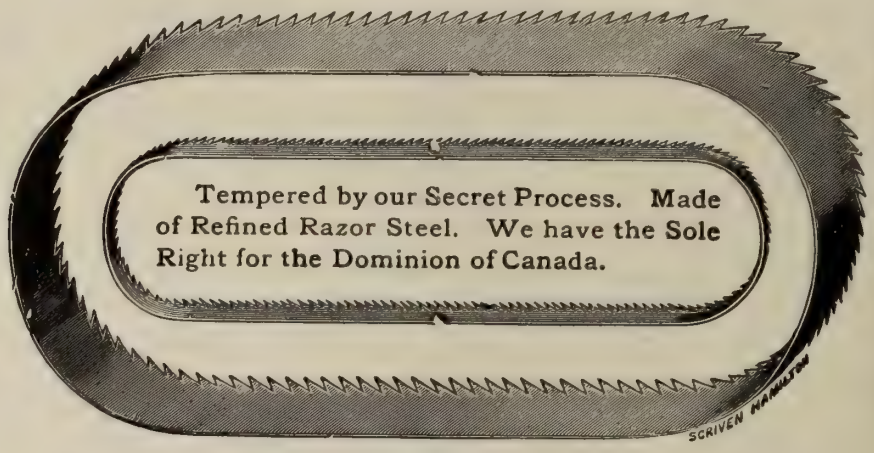
**153-173 W. FRONT STREET, CINCINNATI, OHIO.**

# Maple Leaf Saws

MADE BY

LARGEST SAW MANUFACTURERS UNDER THE BRITISH FLAG

We manufacture Circular Saws Gang Saws Mill Saws Band Saws Cross Cut Saws Buck Saws Saw Setts etc.




We manufacture high-grade **Band Saws** of all Widths and Lengths

These Saws are made of Refined Razor Steel, and Tempered by our Secret Process; for Fine Finish and Temper are not excelled.

**"Maple Leaf" Saws** are the best-tempered saws made

We are the only manufacturers in the world who export Saws in large quantities to the United States

**Shurly-Dietrich Co., Ltd.** **Galt, Ont.**

Western Warehouse and Office, Vancouver, B.C.

# Can You Afford It?

Either to make Window Pockets in the Old Way
or to
Let Your Competitor do the business?

In this day and generation few window pockets are hand made. The process is too slow and too costly. They are made with our Perfect Window Frame Machine, either in your mill or elsewhere. If elsewhere, your competitor makes the profit on them; if in your mill, you make it, and you command, besides, a large volume of other business that naturally goes with the frames.

Is it good economy to get along without a machine that cuts out nine-tenths of the labor, that helps you control trade that rightfully belongs to the mill, and that can earn its cost every year?

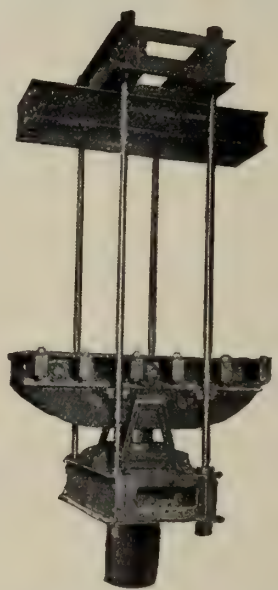
**It is too good and too sure a money-maker to pass up**

**Smith & Phillips Mfg. Co.**

**412-422 N. Sangamon St., Chicago**

We make a Stair Router, Light Shaper, Edge Jointer and Sash Groovers that ought to interest you.

# Hydraulic Veneer Press



We build these presses in all sizes and styles for all kinds of Veneer work

**Write us for Prices**

**William R. Perrin & Company**
**Limited**
TORONTO

# R. H. Smith Co., Limited

## St. Catharines, Ontario

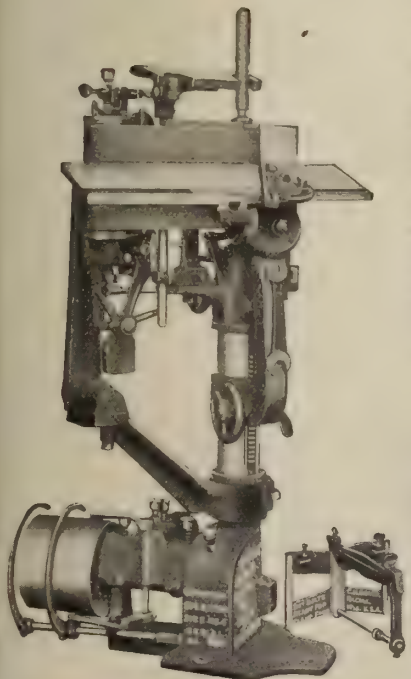
MANUFACTURERS OF THE CELEBRATED "GOLD COIN" SAWS

**We make Inserted Tooth Saws, Shingle Saws, Cross Cut Saws, Hand Saws, etc., etc.**

**We make every kind of Saw required in Saw Mills, Planing Mills, Furniture Factories, Piano Factories, Carriage Factories, etc., etc.**

We have been manufacturing for the Canadian trade since 1855, and have maintained the same high standard of excellence. Let us know your saw requirements.

## Manufacturers Attention!



Chicago, Ill., Jan. 20 12.

C. H. Driver,
Racine, Wis.

Dear Sir:

Will you please send us cuts with full information and your very lowest cash price on "The Little Wonder Sander."

We have had one of your machines in operation in our factory for about nine years, but presume that you have made changes and improvements since then and of course we want one of the latest improved.

Your prompt reply will greatly oblige.

Very truly yours,
PRICE & TEEPLE PIANO CO

Since the above inquiry we have received their second order. This Sander is especially adapted for Piano Manufacturing, it is the only Combination, Reciprocating Belt and Spindle Sander, it covers a larger range of sanding than any other sander, it has proven to be a great Money Maker in all lines of manufacturing.

Write us for complete description

**C. H. DRIVER, Racine, Wisconsin, U.S.A.**

## "Pioneer" Moulding Sander
## Power Veneer Presses

Cabinet Clamp

Veneer Press

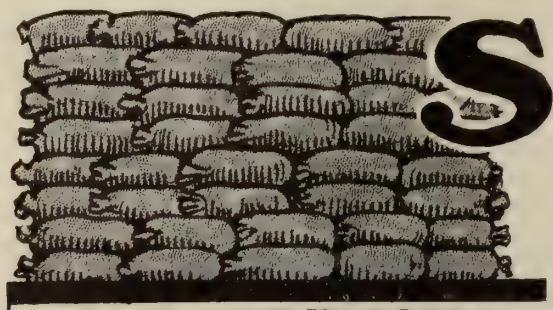
Write for Catalogue and Prices

Chain Clamp

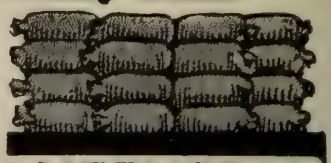
**Black Bros. Machinery Co.**

Mendota, Ill.

Column Clamp



# SAVED 75%



OLD METHOD NEW METHOD

## Of Joint Glue

Such a saving seems impossible to all but users of the Linderman Automatic Dovetail Glue Jointer. This does not mean that there is less glue in a Linderman Joint over the plain joint. By the old method of glue jointing over 80% of all glue spread on the joint was absolutely wasted because it was forced to the top or bottom of the joint wasting the glue and dulling the planer knives. All cabinet makers will acknowledge that to have a perfect glue joint it is necessary to have edges of the lumber planed perfectly true, applying the smallest amount of the best glue obtainable and rubbing the joints together until the fibres of the wood mat, uniting the two pieces into a solid board. This is the Linderman Method, all done by machinery, and every joint is held in a permanent clamp able to withstand the most severe test.

For particulars regarding the Linderman Machines, address:—

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**Hanover, Ont.**
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**Dominion Furniture Co.,**
**St. Therese, Que.**
**St. Lawrence Furniture Co.,**
**Fraserville, Que.**

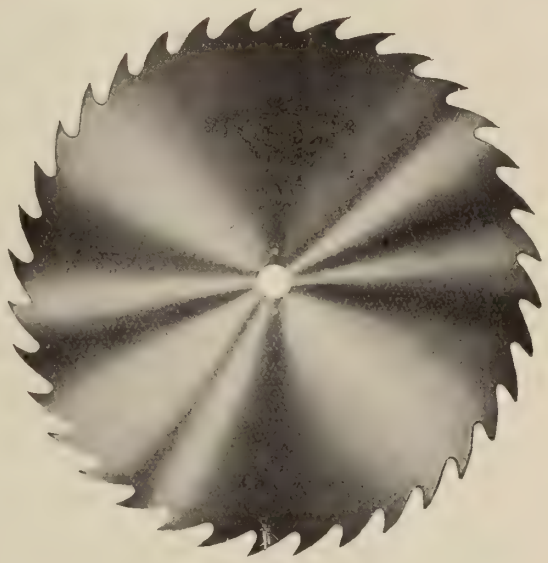
**and others whose names we will be glad to furnish you.**

# CANADIAN LINDERMAN CO., LTD.

WORKS AT

MUSKEGON, MICH. WOODSTOCK, ONT.

# When the Circular Saws in your Planing Mill are



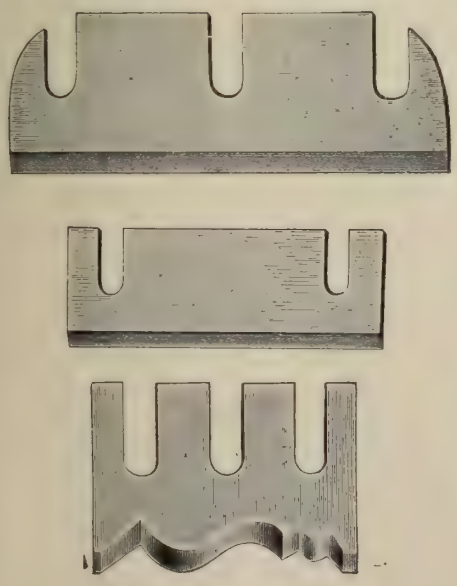
# Simonds Saws

**AND BEAR THIS TRADE MARK**

SIMONDS CANADA SAW COMPANY LTD. TRADE MARK VANCOUVER B.C. Simond Steel ST JOHN. N.B. REGD UNEQUALED IN QUALITY AND UNIFORMITY MONTREAL QUE.

The Guarantee of Quality made by our Company protects you and assures you a product that is the Height of the Saw Making Art.

# Simonds Machine Knives



Are made in all styles and any desired size. Welded, Balanced, and Finished with the greatest care. Orders promptly filled. Standard sizes carried in stock.

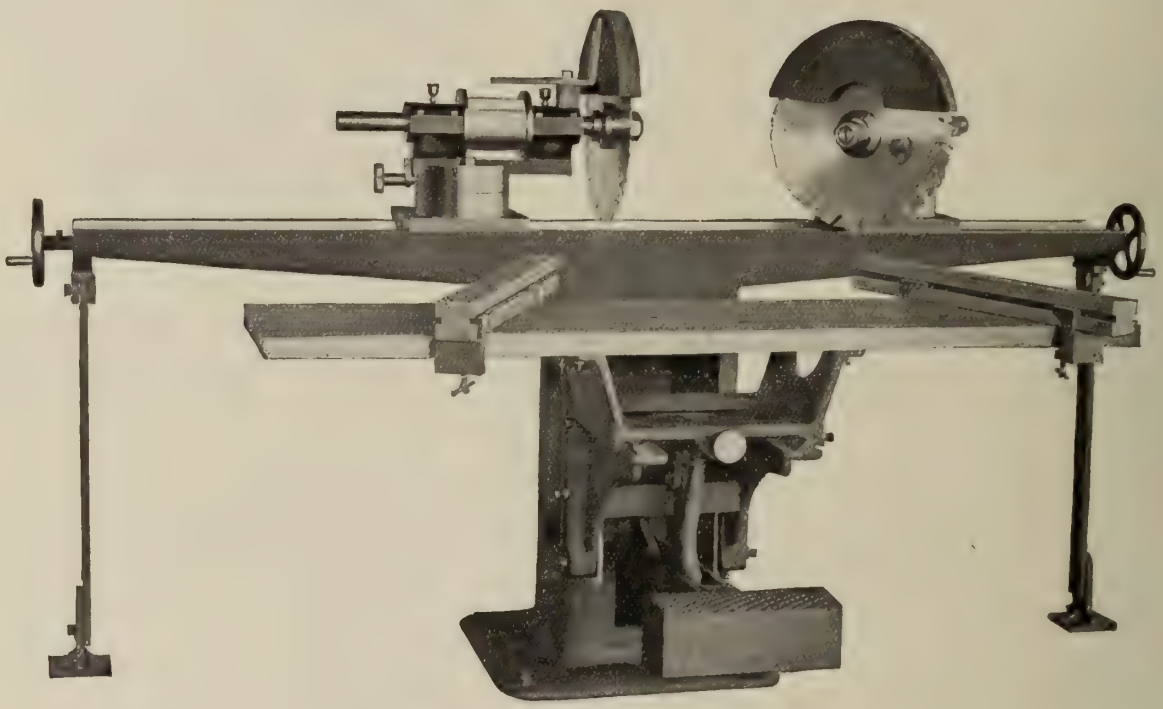
**Factory in Montreal**

## Simonds Canada Saw Co.

**Montreal, Que** **Limited**

**Vancouver, B.C.** **St. John, N.B.**

# C. M. C.



**No. 636 Double Mitre Cut-off Saw**

Have you ever taken note of the great waste of time required to saw a double mitre on your work under the old way?

Here is a new way which has been proven to be a time saver.

The Double Mitre Cut-off Saw here illustrated furnishes the latest and most improved method for rapidly and economically sawing a single or double mitre up to 45°.

Our Bulletin No. 636, fully describing this machine, sent on request.

Have you our large general catalogue?

**Largest Manufacturers of Woodworking Machinery in Canada**

# Canada Machinery Corporation

## GALT, ONTARIO Limited

# Canadian Woodworker

**Canada's Only Woodworking Paper**

Published in the interests of Planing Mills, Saw Mills, Furniture and Piano Factories, Implement and Carriage Works, Boxmakers and Coopers, Carpenters and Builders.

The Circulation extends from the Atlantic to the Pacific and covers thoroughly all classes of Woodworkers in this immense territory.

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**Vol. 12** **September, 1912** **No. 3**


## Canada's Factory Growth

The census reports of Canadian manufacturers taken in 1911 are now compiled.

Compared with the census of 1901 for the year 1900, they show an increase in ten years of 4,559 in the number of working establishments; of $798,829,-009 in the value of capital; of 175,108 in the number of persons employed; o f$127,274,301 in the earnings of salaries and wages; and of $683,722,157 in the value of products. The following statistics give the comparative figures.

Establishments in 1900, 14,650; in 1910, 19,209.

Capital, 1900, $446,916,487; in 1910, $1,245,745.496.

Employees, 1900, 339,173; in 1910, 514,287.

Salaries and wages, 1900, $113,249,350; in 1910, $240,523,651.

Products, 1900, $481,053,375; 1910, $1,164,775,532.

During the past decade there has been evidently a steady tendency toward the merging of industries. There are 14 industrial establishments having a production of five million dollars or over annually, and 136 establishments each with an annual production of between one and five millions.

Over half of the factories in Canada, or 7,992 are in Ontario, and the annual value of products is given as $578,763,118.

During the five years from 1905 to 1910 the three Prairie Provinces doubled the annual value of their industrial products.

## Vocational Work Grows in Buffalo

Vocational school No. 5 at Seneca and Hydraulic streets is to be enlarged this year and new departments added. Since the school was organized it has not had room to accommodate the boys who wished to enter. This year four rooms are to be added, making a total of thirteen rooms used by the school. With these additions it will be more convenient to carry out the work planned.

The work of installing the new machinery will be finished early this month. When everything is in place the Seneca Vocational School will be one of the best equipped schools for the courses offered. Carpentry, cabinet-making, electrical construction and machine-shop practice will be taught.

The carpentry and cabinet-making departments will occupy six large rooms on the second floor. Besides the necessary benches and tools there will be used the following machines, driven by individual motors: Universal saw, jig saw, band saw, surfacer, joiner, mortising machine and wood lathes. It will be the purpose of this department to give the boys both the hand and machine training. They will make book-cases, tables, chairs, will study house construction and build the different parts.

The electrical department is on the third floor and has the use of three rooms besides the loft where the wiring is done. In one room will be found the engine lathes, drill press, emery grinder and hand tools. Benches will be placed around the wall and provided with tools and vises for the construction work. In another room will be found the generating sets and switches. The other room is used for the laboratory and experimental work. This work seems very important in order that the theories taught may be verified and better understood.

The machine shop is to be added to the school this September, and will have the use of two large rooms on the first floor. The following machines make up the equipment: planer, universal milling machine, shaper, drill presses, engine lathes, universal grinder, emery wheel, forge, anvil and gas furnace.

Practical machines are found in all the shops, and each department is in charge of a practical mechanic. Special care is exercised to make the work practical and helpful to the boys. Many compliments have been received with references to boys who have gone out from the school. Many of them have found good positions and have received unsolicited promotions.

The school does not neglect the book work, but spends one-half of the time at practical book work. It has been found that by correlating the shop and book work the boys get more real academic training than when the whole time is spent with the books. This work is in charge of trained teachers and much of the work is individual. The shop and academic instructors work together and on the same problems. The subjects taught are arithmetic, algebra, bookkeeping, business English, spelling, commercial geography and science. The laboratory is large and well equipped with the necessary apparatus.

## Looking into the Future

Every time you visit a factory town and talk with the different manufacturers, sooner or later it develops that in that town is one plant which is particularly successful and which is considered more or less of a leader by all the others. So you naturally are curious to visit that plant; to see that man in charge of that plant; to find out his ideas and methods. And, in nine cases out of ten, you find that the one reason for this man's success is that he looks ahead—that he foresees tendencies in business and "gets there first."

Manufacturers' associations, engineering societies, trade associations—all are interested just now in accident prevention. Just as ten years ago there seemed to be a wave of investigation in the cost of production, now there seems to be an investigation into the employers' liability laws. The relation of the workman to the employer, and of those things which af-

fect the workman and his attitude toward work, are receiving more attention. When you visit the most successful factory in town, you will find that the man at the head of that plant is thinking about these subjects, finding out how he can apply principles under his conditions—while they are hot.

## The Value of a Trade

I remember years ago, when I was a very young man, writes Foster Coates, meeting John Roach, the great ship-builder, in his shipyard at Chester, Pa. I remember, too, what he said about the value of a trade to a boy.

"Young man," he said, laying his great, broad hand on my shoulder, and looking at me earnestly with his keen, steel-blue Irish eyes, "next to a clear conscience, a trade is as good a thing as any young man can have in this country. You can carry it with you all your life long; you have to pay neither rent nor taxes upon it, and it will help you around a sharp corner when most other things will fail."

I have never forgotten that utterance from a man who started in life—after landing in New York from Ireland—as helper to a machinist, who became the leading ship-builder of his time, and who, up to the hour he was stricken with a fatal illness, could take the place of any of his workmen, whether it was a man driving rivets or an expert putting together the most delicate parts of a steamship's machinery.

Something very like what John Roach said, I heard another great man who is now dead, say. This was Peter Cooper, a man of whom American boys cannot know too much, and whom they certainly cannot too much admire.

"If I had my way," said the venerable philanthropist, on the occasion to which I refer, "I would give every boy a trade. Then I would have him stick to it, love it, and be good to it. If he does, it will be good ti him." It was homely language, but it was truthful, as boys will find if they will it so.—Exchange.

## Two Ideas on Choosing a Foreman

**By the President of a Textile Manufacturing Co.**

It is not a question of following any hard and fast plan, as circumstances over which we have no control often change the method. Preferably, it is best to choose a foreman from the ranks of our own employees, wherever this is possible. Very often we find it necessary to change that programme and get an entirely new man from the outside, but who is experienced in the kind of work in which he is needed.

Men work in harmony with a foreman, whether they know him personally or whether he is a new man—provided, always, that the foreman himself is the right kind of man and has the proper support from the management. In other words, it is not a question of acquaintance as to the co-operation which men give the foreman; it is largely his competency and his ability to handle men.

We check a man's ability by constantly watching his costs; by observing the class of work he produces; by taking a careful examination of the employees he engages; and trying to become familiar with his disposition and character. When we know these and find out his best and weakest points, we try to strengthen him in the weak spots and co-operate with him in his best endeavors. All men are naturally not alike, and to each soce special adaptation must be given.

(By the Manager of a Waist Manufacturing Company)

Jealousy is the predominating characteristic of the average man. It seems to be an impossible proposition for him to grasp the idea that the orders issued by his foreman are formulated by someone higher up and that he, the foreman, is simply carrying out instructions received.

When a shopmate is chosen to supervise and direct the details of a department where he, for a long time, has been in the habit of meeting and being on the same level with the man he is now called upon to meet in an entirely different capacity, this characteristic spoken of above is bound to show itself and the efficiency of the department will suffer in consequence.

In my many years of factory management, I have never placed or caused to be placed, a man in the factory where he has received the necessary amount of experience that would warrant his consideration for an executive position.

Familiarity (and there is bound to be more or less) would in itself be a bar sufficient to condemn such a course.

In view of above conditions, it would be far better in my judgment to select a man who has received the necessary amount of experience in other factories even though we feel by doing so we are doing an injustice to some one in our employ.

Any man who must answer the countless questions that will be put to him from day to day must, of necessity, be a practical man, and much better for him and the people whose interest he is there to further if he receives his primary education in the scrap heap and works his way up by gradual advancement to be the head of his department.—Factory.

## The Trade Paper and the Business Man

**By J. A. Murphy**

Many retailers have a wrong idea of the purpose of a trade journal. They imagine the journals are filled with theories written by men who have no practical experience.

I was talking to a storekeeper (I use that term advisedly) the other day, and he said to me, "Those dodgasted trade papers are trying to teach me my business." Judging from the appearance of his store, I concluded he was not a very apt pupil, or else the journals are very poor teachers.

No, brother merchants, the trade journal is not trying to teach you your business. It could not. You only can run your business. The trade journal can not even help you, unless you let it. It furnishes the information. You must use it.

The trade journal does not claim to be a teacher. It is something much more than that. It is not a preacher, because it knows the good merchant hates mere preaching. It is not a doctor, because it can not, of itself, cure your trade evils. It is not a lawyer, because it can not plead your case. What is it then? It is a clearing house of ideas. It searches the world for ideas, sifts them, sorts them, and passes on the meat to you. It is a bulletin board informing you of the very latest developments in your own line of work. It is a newspaper written especially for you, and about your business. It is a detective who tells you why your competitor is succeeding. It is a watch-tower man, who forewarns you of a storm approaching on

149. **Maple strips.**—A London firm of timber brokers and agents wishes to get into communication with Canadian manufactures and mill men who could supply them with clear maple strips—white.

150. **Furniture.**—A Cienfuegos, Cuba, firm of importers would like to hear from Canadian manufacturers of furniture.

151. **Spruce.**—A broker in Cienfuegos wishes to represent a lumber firm.

152. **Office furniture.**—A first-class firm in Santa Clara, Cuba, is anxious to establish relations with Canadian manufacturers of office furniture.

153. **Box shooks.**—Inquiry is made by a Santiago de Cuba firm for the names of Canadian manufacturers of box shooks for soap, liquors, chocolate and similar articles.

154. **Broom handles.**—Inquiry is made by Cuban firm for the names of Canadian manufacturers of broom handles.

155. **Wood bungs.**—A Manchester firm wishes to receive samples and prices c.i.f. this port of wood bungs, sizes ¾-inch, 1⅞-inch, 2⅛-inch and 3-inch. At present buying in the United States.

156. **Timber.**—A Manchester firm with large connection is open to consider quotations of British Columbia timber, c.i.f. Manchester.

895. **Planks and other lumber.**—A firm of commission merchants in Johannesburg wishes to get into communication with Canadian shippers of planks and other lumber suitable for South African markets.

158. **Timber adze.**—A Lancashire correspondent desires to get into communication with Canadian firms in a position to export hard timber adze trimmed to 5-inch and 8-inch diameter, to cut into lengths of 2 feet 4 inches to 2 feet 8 inches; also timber adze, trimmed from 24-inch diameter and to cut into lengths from 30 inches to 48 inches.

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### East African Cedar for Lead Pencils

There are about twenty lead pencil factories in and around Nuremberg, Germany, which consume approximately 100,000 tons of cedar wood annually. All of the lead pencil factories in Germany excepting one small ioncern at Regensburg are locatet at Nuremberg. For 250 years the operators of these factories have been dependent on America for their supply of pencil cedar, which includes the northern red cedar (Juniperus virginiana) and the southern red cedar (Juniperus barbadensis). Suitable woods from other sources have been sought for a number of years, but none have ever been found that were so satisfactory, or that approached in quantity and quality the cedars of the eastern and southeastern United States. It has recently been announced, however, that this dependence on the American product is almost at an end, since the extensive Schume forests of cedar (Juniperus procera) in German East Africa are being exploited. These forests are said to furnish a wood equal in quality to the average grades of the American cedars and sufficient in quantity to satisfy the needs of the German factories for a good many years to come.

The German government had an investigation made of these forests with a view to developing them and to render the timber supply available for use. It did not lose an opportunity to make known this large supply of cedar wood, and a concession has recently been granted to a company for the exploitation of this valuable timber. The company has constructed a cable-tram line at a cost of nearly $400,000, for the purpose of bringing the logs to the mills. It is the steepest cable-tram line in the world, and is said to be a masterpiece of engineering skill. The line is now being successfully operated, and the cedar logs are converted into lumber and transported by rail to the port of Tanga, in Usambara. From here is is shipped by the steamers of the East African Line to Hamburg—the principal distributing point.

Many government officers have tested the lead pencils made from this African cedar and have approved them; the Prussian ministries of finance and of the interior both have recommended that pencils made from East African cedar should be given preference. Practically all the leading German lead pencil factories are now using some African wood, and the pencils made from it are pronounced to be equal to those made from the American cedar.

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Sometimes a Canadian makes his fortune in England, although usually the story reads the other way. A Toronto contractor employed a certain man as foreman in the building of houses. Ten years age the foreman left him, only to reappear recently in the yards of his old employer a wealthy man. He had made his fortune in England building houses on the Canadian plan. Instead of erecting structures aimed to last for centuries, he built them so as to last a generation or two; they contained from six to eight rooms; had furnaces and other modern conveniences. He sold them at from £500 to £1,000, and in his ten years' experience could not build them quickly enough. The English people of that particular region were bidding for his houses before the foundations were finished. Now he is taking a six months' holiday. Sometimes it pays to go east to make money.—Colliers.

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It costs money to pile lumber on the factory yard before using it, but if, in the process of receiving and piling, the lumber is properly sorted and graded for thickness and widths, there will be some valuable return for this expense.

# Machinery Manufacturers

The Canadian National Exhibition is admittedly the greatest annual fair in the world. This year the attendance reached almost one million, two hundred thousand of which were American visitors. Had the weather been fine and dry, the attendance would have been much greater. There was ample room for more people except in some of the buildings, especially Machinery Hall, which is far too small for the accommodation of the large number of visitors interested in the various machines and appliances, such as oils, belting, etc. A new Machinery Hall is badly needed for 1913.

### A New Machinery Hall Wanted

Ask any manufacturer who has ever had an exhibit in Machinery Hall, and he will say that what is wanted is a building about three times the size of the present one. A building divided into sections so that the useful, but noisy and evil-smelling, gas engines may be kept apart from other exhibits. When the new Hall is planned it should be along the lines suggested. Then each exhibitor would have a section suitable to his display.

The present system of crowding together running machinery and idle machinery is all wrong. Provision should be made for the display of belting, oils, grinding stones, and so on. Also plenty of space should be given over to woodworking machinery so that the visitor and prospective customer may have a good opportunity of seeing from every point of view the machinery he is most interested in.

Another matter that should not be lost sight of when the building is erected, is that travelling crane be provided for handling the heavy machines.

There are other matters also that will have to be considered when the subject comes before the Exhibition Board, who discussed this badly-needed building last year.

To some the 1913 Exhibition is a long way off, but now is the time to ask the machinery manufacturers what kind of a building they would like. The "Canadian Woodworker" can be used as a medium for giving expression to the views held by exhibitors who have had space in old Machinery Hall, and who say that they want a bigger and better building with some of the features mentioned here.

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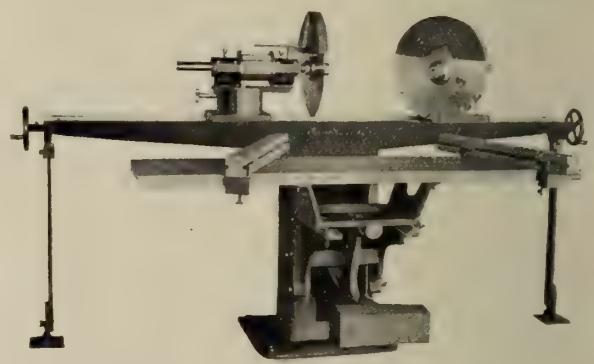
### The Canada Metal Company

At the Toronto Exhibition no part of the Machinery Hall was better patronized than the exhibit of the Canada Metal Company of Toronto. Here could be seen ingot copper, pig tin, pig lead, antimony zinc, lead pipe, solder, battery zincs and last but of most interest to all users of woodworking machinery was their exhibit of Babbitt Metals. Old friends met there and discussed the Babbitt Metals manufactured by this company. The Babbitt Metals were arranged most artistically and one could see all grades from Imperial Genuine, for high speed engines, and which is recognized as the highest grade of Babbitt Metal made, to Mogul for slow running machinery. Prominently displayed was Harris Heavy Pressure, a high grade babbitt sold at a medium price and for general machinery suitable for all classes of bearings in woodworking plants.

W. G. Harris, the president and founder of the Canada Metal Company, was in charge of the exhibit

[illegible] engineers to secure one. They are sent post free to all users of babbitt metals. Write for a copy to one of their factories at Montreal or Winnipeg, or to the head office, Fraser avenue, Toronto.



The Double Mitre Cut Off Saw illustrated herewith is of particular interest to our readers engaged in the manufacture of furniture.

A glance at the construction of this saw shows it is of particular advantage to any person who requires to cut a double mitre in one operation. The many features of advantage of this saw are worth investigating, and it is by the permission of the builders, the Canadian Machinery Corporation, Ltd., of Galt, Ont., that we are able to give a description of these parts.

The frame is cast solid with a large base, and also a slide for the compound heads. This slide is accurately planed and ribbed throughout and carries the compound heads. These heads have finely graduated dial for setting at any desired angle from 0 to 45 degrees, and have an adjustment of 2 ft. 9 in. by means of a handwheel and screw. Mitres as long as 5 ft. 2 in. and as short as 7½ in. can be cut in one operation.

The special table is of black ash, and is raised and lowered by a set of compound levers and counterweights to insure ease of operation.

This machine was on exhibit at the Canadian National Exhibition, and it created considerable interest on account of the wide range of work it is applicable to.

# The Augustine Rotary Engine

Benjamin F. Augistine

The Augustine Automatic Rotary Engine, a new prime mover in use in the States for two years, which is now being introduced into Canada, is worthy of the careful consideration of those engaged in the woodworking trade. Its merit as an economical invention is not the less enhanced by the interesting fact that it is the product of the genius of a man of Canadian birth.

The compactness, lightness, simplicity, durability and operative economy of these engines must be conceded by every honest investigator inasmuch as the owners of the engines that have been installed in and around Toronto are unanimous in praising them. These engines have been scientifically tested by Prof. E. A. Hitchcock of the Ohio State University, and in a lengthy report, in which comparison is made with the records of other engines of standard types, both slide-valve and turbine, it is shown that the Augustine rotary engine surpasses them all in point of economy. This remarkable result is well authenticated by the cost of operation of a large number of engines installed in various industries throughout the States as well as in Canada.

A number of these Augustine engines are in use in woodworking plants, and besides the proven economy generally they are very well adapted otherwise to saw mill and planing mill work, particularly from the fact that there is no perceptible variation in speed from full load to no load—the governing in this respect being so near perfect that it is without question marvelous.

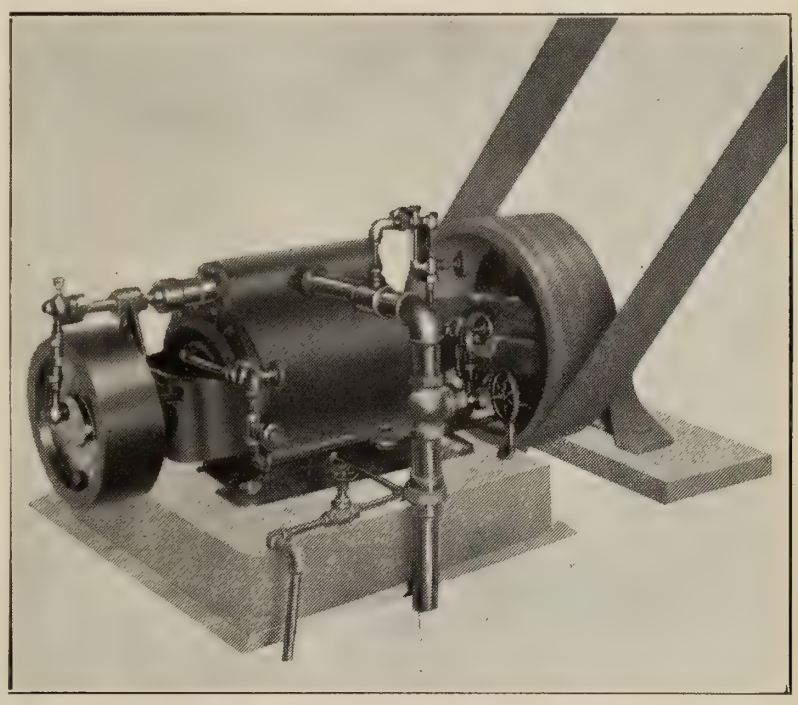
For the operation of blowers, exhaust fans and direct-connected outfits, the Augustine engines are in a class by themselves, and can be adjusted to almost any speed, high and slow.

At present the company is manufacturing only steam engines, but it has patents pending, which are expected shortly to be allowed, upon attachments which will permit the engines to be operated as combustion engines. It is confidently claimed by the inventor and the officers of the company that as a combustion engine their rotary will without question supersede all other types of engines, both stationary and movable, on land or sea, and in all sizes of power units. It is possible to operate them with gas, gasoline, alcohol and coal oil, the economy under any of these fuels being about two-thirds or 66 per cent., as compared with other existing types.

The Canadian patents on the Augustine invention are owned exclusively by the Augustine Automatic Rotary Engine Co. of Canada, Ltd. The present officers of the company are Benjamin F. Augustine, the inventor, President; John Franey, Secretary-Treasurer; and I. E. Mighton, Director. The capitalization is $1,000,000, divided into 40,000 shares of the par value of $25 each. The company has sold much of the allotment of stock so far issued to mechanics, such as engineers, electricians, machinists and those interested in the automobile and motor boat industries, after investigation, which is an indication of the nature of the invention.

The treasury stock is sold at par, and a bonus of the Patentees' stock is given with each sale of the treasury stock. The amount of bonus given is being gradually reduced as the receipts from sales of stock approach the amount of money to be raised when the treasury stock will be sold at par or beyond par, without a bonus. The proceeds of the stock sales are to be expended for the erection of a plant to manufacture the engines, the location of the site and city where this plant is to be located is to be determined later. Many offers have been made to the company for the location of the plant, and whatever town secures it will obtain an industry of immense value to the fortunate community.

It is the policy of the company in Canada, as it is in the States, to divide the business of making the engines into classes, each class having the exclusive right to make engines in its own line for the entire Dominion. There will be a score or more of these Canadian companies, all of them to be subsidiary to the original Canadian company, which is the parent company. The parent company pays no royalty or other moneys for the use of the patents, owning them outright.



The offices of the company are at No. 80 King street East, Toronto. There is a display of the engines there, both in running operation and disassembled, which the public generally is invited to visit.

# Woodworking Machinery and Practice

### Engine Foundations and Their Functions

Engine foundations perform two functions; they hold the engine bed firmly in place and they absorb vibrations. The foundation must, therefore, be heavy and bulky and it must have a substantial and firm bearing in the earth. Concrete is by far the most available and best suited material for this purpose. It is not only a comparatively inexpensive material but it is also exceedingly convenient to handle and to mold into the necessary form. Moreover, with intelligent supervision, the foundation may be built without the ust of skilled labor. However, sufficient time must be allowed for the concrete to set before a load is placed on the foundation, says a writer in Power.

The engine base is held to the foundation by means of anchor bolts. These are mild-steel rods several feet long with square nut and anchor plate at one end and hexagon nut at the other. The foundation is usually built and the anchor bolts set in the locations indicated for them on the engine builder's setting plans before the engine has been shipped so that the foundation may be ready to receive it when it arrives. The enchor bolts are hung from a template which is securely fastened to the top of the forms for the concrete, and the anchor plate is completely buried in the concrete. A small wooden box, tapered from the lower end to the upper end, is made to surround the anchor bolt; this allows for a slight adjustmtnt of the bolt so that it will fit into the cored holes provided for it in the engine bed. This precaution is necessary because it is almost impossible and, in any case, too expensive, to set them so that an accurate fit is obtained.

When the engine arrives and after the concrete has properly set, the engine is moved to its foundation where it is set into position. Small iron wedges are driven under the edge of the engine bed until the engine is level, thus leaving a space of one-half inch or more between the engine base and the top of the concrete. The hexagon nuts on the upper ends of the bolts are then tightened up, after which a cement grout is run under the engine base and allowed to set. When the grout has set the wedges are removed and the nuts on the anchor bolts are again tightened as much as possible.

In order that the foundations may perform to the fullest extent its functions as an absorber of vibrations the vertical hole through which the anchor bolt passes is not filled with grout. This allows the bolt to stretch or elongate throughout its entire length whenever subjected to shock. It may be said that to act somewhat in the manner of a spring. If the anchor plate is of ample area, no advantage in holding-down force is obtained by grouting the bolt for the whole of its length as the bond between the steel and the concrete is comparatively slight in effect. Any lateral movement of the engine on the foundation is prevented by the force of friction which exists between the engine bed and the top of the foundation. The greater the initial tension in the bolts, the greater is this resisting force. If a slight movement should take place this resisting force would increase enormously because the tension in the bolts would increase as they are stretched to accommodate themselves to the new position. Shearing strains which are liable to occur in the bolt between the top of the foundation and the engine bed, if it is completely bedded in the grout, are also prevented.

It is sometimes necessary to change an old foundation to accommodate a new arrangement, such as the compounding of low and high-pressure steam cylinders, to increase the power of the engine. Whenever it is necessary to set an anchor bolt in an old foundation, the difficulty may be met in one or two ways. In the first method a hole is drilled in the concrete slightly larger in diameter than the bolt to be used and to the proper depth. A bolt is then prepared by cutting a slot in one end lengthwise of the bolt and about six or eight inches long. This slot is then fitted with a wedge of hardened steel held in place by a pin of soft copper or other soft metal. The bolt is lowered into the hole and struck several hard blows on the upper end with an htavy hammer. This shears the soft metal pin and drives the wedge into the slot, thus enlarging the diameter of the bolt at the lower end. The bolt is then grouted into tht hole and the nut is tightened to complete the work.

In the second method a hole is drilled for the bolt as before. A second hole is then drilled laterally through the sides of the masonry to meet the first hole and then is enlarged sufficiently to take the standard anchor plate. The work is completed in the customary manner, precautions being taken to grout the anchor plate to a firm bearing in the old concrete. The first method is cheap and simple, although there is no certainty as to what happens in the bottom of the hole. It also has the advantages of the grouted bolt previously mentioned. The second method, while it is more troublesome and expensive, is the more reliable and should be used in preference to the first.

The reciprocating engine, since the tendency to produce vibration is greater than in the case of the steam turbine, requires a comparatively heavy foundation. In some cases and in peculiar locations this advantage of the turbine may be so great that the choice of equipment is strongly influenced in its favor. The heavy foundation is expensive to build and, in the case of large units, the cost of the foundation forms a large percentage of the total expenditure of the installation.

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### Working Common Lumber into Finish

Of late years there has been more disposition than ever for the planing mill man to take the common grades of lumber, and by cutting and refining, use them for finish, especially for window and door frames and casing.

It is practical to do much of this, too, and save in the cost, as low-grade lumber comes considerably cheaper than what is called finish lumber proper. And there is no objection to a planing mill man reducing his raw material cost all that is practical, so long as he maintains a good standard in his finished stock. The one thing to look carefully after, and that is likely to be forgotten if the memory is not jogged on the point, is thorough drying. Mill men, as a rule, do not take the same pains in drying low-grade stock that they do in drying finish lumber, consequently, unless the planing mill man himself uses a dry kiln and put the stock through it, he may work stock that i sreally too green, though it may seem

dry, for finish work, and the shrinking after it is put up will cause it to be unsightly.

He may find, too, that the necessity for kiln-drying common lumber before working it into finish, will cost just as much or more than it would to have worked finish lumber to begin with. There is something to this point, though it is not a bad idea to kiln-dry the finish lumber, too, even though it may have been kiln-dried at the mills.

The mills are not over-zealous about thoroughly kiln-drying, especially in pine. You may get hardwood that is thoroughly kiln-dried, provided it has been kiln-dried at all. Hardwood usually comes from the mills without kiln-drying, and the manufacturer has to do the drying himself. The pine mills drive out the great quantity of moisture—that is, the weight—but they are not so much concerned about the absolute dryness as the planing mill men, who must finish the stock and put it up. It is in the last stages or drying that the lumber does most of its shrinking, consequently finish that is put up only working dry, but not thoroughly dry, may shrink considerably.

The secret of good finish, no matter whether you refine low-grade lumber or use high-grade to start with, is to have it thoroughly dry before it is worked.

### The Hardwood Flooring Business

The business activity of every hardwood flooring manufacturer may be likened to a pair of scales, whose balance consist of the producing departments, which serve to get quality, and of the service department, which must contain definite connection with and supervision over the contracting force that lays the floor. Of the two balances, the latter may be reckoned as the more important.

The first consideration, that of quality in production, resulting from a well-equipped and scientifically-managed plant, is what affords the manufacturer his first really strong grip on the field. In the commonly used policy of selling from manufacturer to the flooring contractor who makes a specialty of laying, and who acts as the middleman between the producer and consumer, the contractor is quick to grasp the service of the best-equipped mill in his vicinity, the one that will produce for him the finest grade of flooring or parquetry, will deliver it on time, and the one that is generally substantially backed. The manufacturer gains advertisement through the excellence of his product and it is by his works that he first becomes a power in his territory.

But in maintaining prestige that has once been gained, it is necessary to pay attention to the second blance of the scales of business. After the first step of flooring production has been successfully managed, the flooring man is practically in his dealer's or contractor's hands. Whatever weal or woe comes to the name of his establishment through popular opinion of his floors is directly traceable to influences that are controlled by men who lay the strips.

Obviously, no matter how good the floor, if it is carelessly laid the house-owner is justified in registering a strenuous complaint, and though it be due absolutely to no fault of the flooring manufacturer, that worthy is bound to receive what is termed a black eye in business, the unrestrained "kick' of a dissatisfied customer. If a satisfied customer may be rated as the best advertiser in the world, certainly a disgruntled patron ranks as the most effective thorn in the side of the business man.

The flooring stock may be of the finest quartered oak or maple, milled to a nicety and finished even better than piano surfaces, and yet if that stock is laid badly, and it cracks and buckles after a little wear, the owner of the building will forget all about quality in his rememberance of poor workmanship, He becomes a chronic "knocker" on the flooring mill or dealer who supplied the stock, and he does not hesitate to tell his friends about it. Evidently, through not exercising supervision over the contractors who lay his floors, the manufacturer stands all to lose and nothing to win.

The hardwood flooring manufacturer who goes ahead in business with the jaunty assertion that he does not direct contracting himself, and therefore is not responsible for the standing of his product with the public, makes a mistake. He should have every dealer safe under his circumspect wing. The time and trouble expended in supplying dealers with definite instructions covering the work of laying floors are amply compensated for by a harvest of satisfied customers.

It is up to the flooring trade to provide means of tracing the course of its product, and to ascertain the degree of satisfaction afforded the customer from the time the finished stock goes to the contractor until it is in actual and every-day use. It is the consumer who furnishes the demand, and the contractor, who merely acts as middleman, is energetically hustling for business and then patronizing the nearest and best-reputed mill or wholesaler.

The dealer in hardwood flooring should watch the conditions that surround the laying of his floor. He should refuse to supply a job that is not just right; that is, when the weather is bad or the structure itself is unsuited to receive the interior finish and flooring, by reason of not being thoroughly dried out. Furthermore, he should not furnish stock more quickly than it can be laid, for hardwood flooring subjected to varying weather conditions about a building that is nearing completion is sure to prove unsatisfactory.

He should also drop in to inspect the flooring while the work of laying is in progress, and it this be practicable he will have no difficulty in gaining the contractor's co-operation in eliminating bad or careless workmanship. The contractor may not be able to be on that particular job all the time, but he will be glad to assist in straightening out points that are suggested as the result of the competent flooring man's inspection.

The accepted idea of fireproof construction which prevails nowadays in office building, business structures and even in the home, offers unpleasant possibilities to the flooring manufacturer. Fireproof construction nowadays demands concrete floors, but a concrete surface is a cold and forbidding proposition for general utility, however much it may tend to eliminate fire hazard. Consequently, the concrete workers set strips of wood in the floor and hardwood finish is laid over these foundation strips. No matter how imposing the office building or factory, it can be beautified and also fireproofed through a concrete, hardwood surfaced floor.

But a concrete floor that has just been troweled off for its hardwood surface is about the shiftiest material that the flooring manufacturer could have to deal with. The concrete is still wet and persists in remaining damp, so that the upper surface of wooden strips begins to cup within a few weeks after the building is heated for occupancy, and the moisture begins to arise from the fireproofing.

### Hardwood Flooring Contract

In one of the largest cities of the Ohio valley, where the erection of a big hospital has just been completed, a certain flooring contractor laid thousands of square feet directly over a new concrete floor. Two months after the work was completed and the big institution was warmed thoroughly, all the flooring began to cup until the surface in a bedroom or section of hall looked like a miniature "Ocean Wave" or "Racer Dip" at Coney Island. The board of supervisors of the hospital decided at once that the man who made the flooring was responsible. Although the stock was perfect, they couldn't see that the method of laying could have anything to do with it, and placed the blame on the poor manufacturer of the material. That is only one instance wherein flooring men have been visited with popular displeasure because of the sins of the contractors.

The flooring man should watch fireproof structures that are being finished with his product more closely than any others. The best and absolutely safe plan is to wait several months after the concrete is laid, so as to subject it to all climatic conditions, but it is often the case that a structure cannot be held up so long. In such event it becomes necessary for the flooring producer to specify with his contractor that a few coats of reliable, waterproof paint be applied to the concrete after it has set, or that a couple of layers of waterproof paper be laid over the coating between the concrete and the hardwood floor. Such precautions as these preclude the possibility of disaster.

"It is absolutely amazing," said a prominent flooring man who is an enthusiastic disciple of the doctrine of co-operative inspection, " to note that lots of flooring men are willing to have their stock laid as soon as the outside structural work is completed. Sometimes the windows and doors are not in, and new floors are subjected to all sorts of weather. I make it a point to insist that my floors be laid after the house is as tight as a drum, just a few days prior to its occupancy. Furthermore, I burn charcoal heaters twenty-four to forty-eight hours in the rooms to be floored before the work begins, as the result of arrangements with the contractors. The outcome of these precautions is that I never have had an unsatisfactory residence job since I inaugurated the system."

In dealing with work that must be laid over subfloors, there are also numerous opportunities for slips in satisfactory execution. The sub-floor is almost invariably very poorly conditiond to receive the hardwood superstructure. Remedies for such conditions exist in the flooring man specifying that the sub-floor be of kiln-dried stock. In illustration of this point may be cited a recent occurrence in a big eastern hotel. The owners had completed the structure and wished to provide a handsome hardwood floor for its big ball-room in double-quick time.

A big flooring company which is very circumspect took a look at the job and decided that the sub-floor, constructed of rather green stock, would eventually ruin any hardwood floor surface. The flooring experts asked for a month's time to heat the ball-room and dry out the sub-floor, but this was refused and the work was awarded to another company, which went ahead and laid the floor amid the worst possible physical surroundings. Within a month the floor was cracked and buckled, and the wise operators who had at first refused the job were awarded a contract for replacement.

In connection with the existence of bad physical surroundings in the job itself there is the fact that flooring contractors are ofthen poorly equipped to handle storage of stock flooring strips for future use. They supply themselves plentifully, but frequently keep their stock in warehouses that are neither heated nor especially well protected from falling weather. The result is that a lot of strips that are damaged by the weather are forced into commission because the contractor does not wish to stand the loss, and the ill-effect of the procedure eventually hits the manufacturer. As a remedy for this undesirable feature, numerous mill operators are refusing to sell stock to any contractor who is not equipped with a heated storage compartment for its safe-keeping.

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### The Power Clamps for Doors

There has been improvement in door presses as well as in other wood-working machinery, and while the old hand press is still useful and can be made do good service, it is generally worth while, where there is any quantity of doors being made, even in the planing mill, to have a good power press, because often the press itself may add to the good qualities of a door.

The holding or staying qualities of a door depend quite largely on neat, close-fitting joints in the frame. There are the things that hold it together, keep it from sagging, and make it a real worth-while door. It matters not whether it is a tenon-and-mortise door, or whether dowel pins are used for the joints, the one great essential for good work is to have neat, tight-fitting joints. These are the mainstay of the door, and, of course, it is impossible to get them without a good press.

To insure the right kind of job it is essential, of course, that the machining of parts be properly done, so that they will fit up snugly when brought together. This should never be neglected, even when one has a power press that will drive them home hard and obscure some of the inequalities or imperfections of machine work. Right here, though, is a good part about the power press. It will drive home the joints hard, take care of a little unevenness in the machine work and insure a tighter, closer-fitting joint.

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### Saving Time with Trucks

Notwithstanding the many efforts which are made in some quarters to systematize manufacturing establishments with a view to reducing the cost of production, it is possible to go into many shops and mills and find golden opportunities being neglected. Boards and planks from the saws are thrown about promiscuously to be gathered up later and carried to the next machine they have to be passed through. This is rank waste of time and some manufacturers have found it out, and instead of permitting material to be thrown about in this manner for men to walk on, have provided trucks so that the product of any machine can be quickly moved from one machine to another. Material handled in this way is seldom damaged. This, together with the saving of time, soon pays for the trucks.

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A New York building inspector, called upon to examine a school building in the Coney Island section, alleged to be in bad condition, reported it to be "unsafe, but not dangerous."

### An Interesting Talk on Turning

In referring to his own work as sculptor Michael Angelo once declared to a friend of his that "trifles make perfection." Equally pertinent are these words to the handiwork of the turner. If ambitious to attain excellence in his calling and succeed in turning out first-class work, he must pay close attention to what may be termed "trifles." So largely does the success of his work depend upon little things that these cannot be ignored except at the risk of producing inferior results. It may, therefore, not be amiss to call attention to some of these trifles.

In preparing stock for the lathe, when the job to be turned consists of one solid piece, no preparation is necessary save to rip off the four corners and see that the stock is large enough in every way to finish off to the sizes required. To be too scant with material is certainly a mistake. A margin of allowance should be made in length, breadth and thicknes.

There are occasions, also, when a lathe job may consist of two halves. In such a case it is most important that these should be so firmly fastened together as to prevent their flying apart during the process of turning. Such mishaps do occur at times, accompanied by serious results. The writer's experience has taught him, in jobs of this description, to joint the two pieces together snugly; then put a small bit of hot glue, about the size of a 10c piece, at the center and a strip of glue, about ¾-in. wide, across the ends of one piece, then place the other upon it, clamp the two tightly together, allowing ample time for the glue to set. Then, before placing the job in the lathe, it is always safer to drive a couple of steel dogs into each end, lest the glue might give way.

In addition to all this, it is advisable sometimes to dowel the pieces, especially if they be of some bulk. A couple of dowel pins placed along the center line, not far from each end, will help amazingly in holding the pieces together. With all these necessary precautions taken, some of which may appear to the reader trivial, the stock may be placed in the lathe for turning without any danger of the two halves flying apart, resulting possibly in serious injury to the workman.

Another little matter, of no small importance, however, is keeping the tools in good trim. To turn out first-class work a sharp edge is absolutely necessary. A clean-cut, perfectly smooth finish can be procured in no other way. A dull tool never cuts; it simply scrapes the surface, the result being anything but satisfactory. I have more than once seen jobs leaving the lathe simply execrable, just because the turner persisted in using dull tools. The finished surface was rough and ragged, even after being treated to a thorough rubbing down with sandpaper. For such shabby workmanship as this there is no excuse, when it may be so easily avoided. It is simply a question of keeping the tools sharp, so they will cut and not scrape. This also may seem a trivial matter to speak of, still it makes all the difference between a good and poor job and marks the mechanic as either a competent or slovenly workman.

Of course, some men are in such haste to rush a job through their hands as to consider it a sheer waste of time to properly sharpen their tools. They seem to cherish the idea that time spent at the whetstone is wasted. But here is where a sad mistake is made. In the long run nothing is gained, either in time or quality of work, by using a dull tool. A person can accomplish a great deal more by means of a sharp tool and certainly secure better results. It is very much to a workman's credit, therefore, to see that his lathe tools are kept in tiptop trim.

In this connection another suggestion might be thrown out. There ought to be arranged, near to or behind the lathe, if this machine stands close to a wall, a rack for holding the tools. Such an arrangement adds greatly to the turner's efficiency. Everyone knows, who has worked at a lathe at all, that during the process of turning the chips fly about so thick and fast as to bury everything on the bench out of sight in no time. If any tools are lying on it they also are covered up, and when some particular one is needed, the workman has to fumble around among the debris to find it.

All this, of course, involves a serious loss of time, to say nothing of being a sore trial to one's patience. But all this trouble may be easily avoided. If the tools all hang upon a rack in plain sight, it will require but a moment's effort to find the particular one needed. It is worth while trying this simple device as a time-saver, to say nothing of keeping a person at times from uttering words not found in the dictionary.

Another little matter of vital importance to every turner is the regulation of speed. This has more to do with the quality of the work than many have any conception of. No one can handle a lathe before discovering that speed must be varied in accordance with the size of the job in hand. In the case of large, bulky jobs, safety distates that the lathe should run slowly but for small work high speed is always preferable. In the latter instance a high rate is absolutely necessary to secure a smooth finish; only under this condition will the tools cut cleanly. Of course, this matter of regulating the rate of speed may be easily attended to by shifting the belt on the cone pulley.

Thus I have pointed out a number of "trifles" connected with lathe work. Small and insignificant as they all are, seemingly, each one is too important to be overlooked. That workman makes a sad mistake who shuts his eyes to their importance. In fact, he cannot afford to slight any one of those mentioned except at the risk of forfeiting his reputation for skilled workmanship. Next to the carver's trade, there is no other in which trifles count for more than in the wood turner's calling. He can ill afford to despise the day of small things.

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### New Fay-Egan Catalogue

J. A. Fay & Egan Company, manufacturers of the "Lightning' line of woodworking machinery, have just issued a new catalogue which is of interest to every owner and user of woodworking machinery.

This catalogue, known as No. 86, is gotten up in a size convenient for handy reference and in its 352 pages are illustrated and described all of the many improvements in woodworking machines in the past year.

This catalogue is readily a text book on woodworking machines, and is evidently an expensive proposition to print and circulate. The Fay & Egan Company advise us, however, that they will be glad to send a copy, charges prepaid, to any owner or user of woodworking machinery, who will address them on his own or company's letter-head as follows: J. A. Fay & Egan Co., 153-173 West Front street, Cincinnati, Ohio.

### Directions for Hanging Circular Saws

1. The fast collar on the saw mandrel must be perfectly true, and slightly concave on the face; the loose collar should be flat or slightly concave. The object of this arrangement of the collars is to insure their pressing the saw at their peripheries, and also for the purpose of maintaining the saw flat and straight on the log side.

2. The mandrel must fill the eye of the saw, go in free, and both pins have a fair bearing.

3. The saw must be in proper line with the carriage, and the carriage must run true.

4. If, after the collars are screwed up, the face of the saw is not flat, or it does not run true, segments or circles cut from thin paper should be put between the fast collar and the saw, sufficient in thickness to remedy the defect.

5. The mandrel must be level, so that the saw will stand plumb. The bearings must fill the boxes, and the end play should be very slight, if there is any.

6. Set the spread wheel full flush with the face of the saw, and half an inch clear of the teeth.

7. Round off the saw so that all teeth will cut the same amount and be sure that the very points of the teeth are widest.

8. Do nearly all the filing on the under sides of the teeth, and see that they are well spread at the points; file square and have them project alike on both sides of the saw.

9. Adjust the mandrel so as to give the saw a little lead into the log. This lead or deflection should not exceed ⅛ inch in 20 feet.

10. Adjust the guide pins clear of the teeth, and close enough to touch the plate at some point in its revolution. This should be done while the saw is in motion.

11. Do not try the experiment of bending each alternate tooth for the set when using inserted tooth saws.

12. File the teeth hooking, so that the swage will spread them at the points. And use a light hammer in swaging, say ¾ to 1 pound weight.

13. If a saw warms at or near the centre, it is evident that it requires more lead into the log. If it warms near the teeth, it should be led out of the log. The only proper way to change the line of direction of the saw is by slewing the mandrel in the way necessary to accomplishe the object.

14. If, after the mandrel and guide pins have been properly adjusted, the saw does not run straight, but will run either way, as the case may be, a thorough examination should be made, and the difficulty ascertained and corrected. The fault most commonly met with is the want of power sufficient to run the saw at uniform speed. No saw can do work running at high velocity, unless the motion is made uniform. The proper remedy to be applied, when power is deficient, is to reduce the speed of the saw to the velocity that can be maintained, and have the saw hammered stiff. The saw should be hammered special if it is to run a very high speed.

15. In filing solid tooth circular saws, or the teeth of inserted tooth saws, keep the throats or roots of the teeth round, or as the saws are when new. Angles or square corners filed at the roots of the teeth will almost invariably cause a solid saw to crack. The filing of such angles or square corners will cancel the warranty of any saw. The back or top of the teeth leads or guides the saw, and should be filed square across. The under side of the teeth may be filed a little beveled on the teeth of saws that are bent alternately for the set, so as to leave the outer corner of the cutting edge longest.

Some sawyers think a circular saw should work the same until worn out, if it is not accidently sprung in use, or strained in gumming. So far as any damage to the saw is concerned, there is no difference between the use of a burr gummer and a file, but if proper care is not exercised in the use of the emery wheel, there is more danger from their use than either the file or burr.

If the condition of the saw is such that a considerable depth is required to be cut into the plate, the operation should be performed by going over the saw several times, only allowing the wheel to grind away so much as can be done without heating the saw to a blue. There is no excuse whatever for crowding the emery wheel so as to heat the saw red hot, as this is sure to injure the saw, often glazing it, where the wheels come in contact, so hard that a file will make no impression whatever. From these hard spots on the outer surface small cracks commence, invisible at first to the eye, but gradually enlarging, until they become dangerous fractures. After a few times gumming, however, the saw will enlarge on the rim, so that the slightest warmth will cause it to buckle, and there is no remedy left but to send it to a saw-maker and have it re-hammered. A saw re-hammered will generally run better than when new, because all the elasticity (or nearly all) is worked out of the saw by using, and it generally works stiffer than when new.

After saws have been gummed two or three times, no matter how it is done, they will require hammering before they will run properly.

If a press gummer is used, they should be hammered every time they are gummed.

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### Holding the Employee

To hold men is the final test of good management. Hiring help is nothing more or less than making an investment. You wouldn't think much of a man who bought an undeveloped business, spent money in developing its efficiency, and then, just when it began to make profits, sold out. Yet this is precisely what many concerns do with their human investments. They spend money in training and developing men, and then, through lack of proper handling, allow competitors to lure them away. One automobile concern says that each man costs at least $200 before he is developed into a worth-while worker. This figure can probably be taken as an average in any line of business for employees who receive from $25 to $40 a week salary. Even an office boy represents an investment, for he has to be trained to handle things your way.

One of the strongest ties that will hold a man to a concern is the knowledge that he will obtain a square deal in all circumstances. Confidence in the integrity of his employers is the parent-roof from which springs intense loyalty, enthusiasm and interest in the firm's welfare. Under such conditions, even offers of a large salary will not tempt employees away.

Money is not everything; certainty of position and confidence in the employer based on the square deal are unbreakable ties that will bind men to an employer when other methods fail.—R. W. Proctor, in Business.

# Fitting Knives for the Shaper

### Fitting Knives for the Shaper

To the operator so situated that he can make his own knives, I would give a few suggestions which have proved very successful with me. I think that as a rule shaper men's greatest trouble is in getting a steady-running spindle. I know this has been my experience, and I believe shaper men will agree with me when I say it is a very difficult matter to do a nice piece of work on a machine where the collars tremble. I find that usually the trouble is due to knives not being properly fitted to the machine.

My method of fitting knives is to take them, after they have been tempered, to an automatic knife-grinder, such as is used for planer knives, and clamp them onto the carriage of the grinder, then turn the carriage up so that you get about a 45-deg. bevel for the slots in the collar. I then grind them so they are nearly to an edge, then turn the carriage up so it is perfectly level. Now take a piece of hard maple, with a perfectly straight edge—this piece should be about 2-in. wide by 1-in. in thickness—and fasten it securely to the carriage, using it for a backing, to run the edge of the knives opposite of the emery wheel.

Now adjust your carriage so that all four knives will just lie between the piece of maple and the emery wheel, fastening them securely to the carriage! start the grinder and take off just about 1/64-in. of the knife. When each knife has had the same amount of cutting down from its edge, take the knives out and turn them around so that the straight edge is against the piece of maple, and go through the same operation again. If your machine runs true you will have knives absolutely straight and of exact width.

The next important point is to be sure these knives are of exactly the same length. I think there will be no need of balancing them, providing the steel is of the same thickness, as they will already be in balance. And right here I want to give a little experience in a factory where I had never worked.

I was asked by the superintendent of this plant to come down and look over the proposition of taking charge of the shapers. I found a very nice set of up-to-date machines, but the fuss they were making while running was enough to drive a man crazy. One machine in particular was much worse than the others. I stood by a few moments and watched them, wondering why the shaper man running them was not dead or calling for his time.

Finally the superintendent asked me what I thought of taking the job. I told him I would not take it with those machines in that condition at any price. He asked me why, and said, "They are a good make of machine." I told him that was true, "But why are they making such a noise?" He didn't just know why, and then wanted me to tell him. I said I wasn't in the habit of meddling with other shapermen's machines, but that noise showed that something was radically wrong. He persisted in getting my opinion and I finally told him that in my estimation there was one of two things the matter: The knives were either out of balance or they were not of the same width, so that when he tightened the burr down on the spindle it drew the spindle over to the side the narrow knife was on, causing the top of the spindle to run very much out of true.

Then the man who was running the machines came up and asked what I thought of the worst machine. I told him I thought his knives were not in proper balance, and upon placing a lead pencil on the top of the spindle I saw it was running fairly smooth. That gave the impression that the knives were nearly the same width. I then asked if he had balanced his knives lately. He said he had no proper scales for doing such work, but he was very careful to keep his knives of the same size, thinking he could get a running balance that way. I suggested that he shut his machine down and remove his knives, which he did. Comparing the knives as to size, I found they were nearly correct. In handling these knives I noticed a very peculiar feeling about them, which gave the impression that they were not of the same thickness, and getting a pair of callipers I found that one knife was made of 5/16-in. steel and the other was slightly over 3/8-in.—and right there the problem was solved.

Going to the other machines I found the knives very poorly fitted, being nearly 1/16-in. difference in width, which gave the top of the spindle a very bad tremble. I told him if I were operating those machines I would not run them ten minutes in that condition, and that with those knives in proper condition the machines would run all right. About ten days after that I happened along by the same place, and out of curiosity ventured inside. He had taken my advice, and those machines were running very nicely.

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### An Artificial Pumicestone

Natural pumice is so common to volcanic eruptions that after such outbursts the surface of the adjacent seas has been covered for miles with a mass of the floating stones.

The material is a kind of glass (obsidian), which, while in a molten state, has been rendered porous by the expansion of gas or steam in its substance. This familiar stone has always been useful in the arts, but it is not a reliable compound, for it will vary both in grain and hardness, sometimes in the same piece.

This suggested some time ago the introduction of an artificial stone that would answer the same purposes as natural pumice without its faults. This product is made at Bietigheim, in the valley of the Enz. Its constituents are sandstone and clay, and there are said to be no fewer than ten different grades of the stone which are manufactured.

There is a hard and a soft kind designed for the leather, felt, and wood industries; another kind for stucco workers and sculptors; soft, finely grained variety for polishing woods and for tin goods; another kind suitable for treatment of lithographic stones; while other varieties of the artificial pumice are fitted for various duties.

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### Fell Off Roof

Mr. Charles Currie, a carpenter, of Fredericton, N.B., fell from the roof of the house being erected there, fracturing two ribs and receiving numerous bruises about the back and face. Currie was working on the roof of the house when he slipped from the staging and fell to the ground, a distance of over forty feet. Currie formerly lived in Boston, but removed to Fredericton this summer and has since been engaged in building houses under contract.

## The Repair Man; or, Johnnie on the Spot

By Johnnie

I really don't know what all is expected of "Johnnie on the spot," but I have in mind a man who works in a furniture factory (not very large), who is the filer and about everything else when duty demands it.

In this case he is rather an aged Johnnie, and most of the men call him Mr. Jones. And it's Jones here and Jones there a good many times a day. And Jones never knows whether or not he can go to dinner or supper when the rest of the men do.

Sometimes, when he has a particular job of work at home, and thinks he will hurry home and do it, the foreman comes in just before whistle time and says: "Jones, you will have to take up the endless sander belt tonight; it is so stretched now that the idlers can't take up the slack, and we can't spare the machine during working hours." And, as the factory work is first to be considered, he stays and does the job. Sometimes it is a journal to be babbitted, and sometimes a planer head to be taken to the machine shop, which requires a goodly portion of the night to get repaired and back into working order ready for the morning.

I will not go into details with the thousand and one things that Jones is called upon to adjust, but will briefly mention a few.

One day a swing saw man came to him and said: "I want my belt taken up. I can't keep my saw in motion." Jones replied: "That belt doesn't slip. It is about 50 ft. long; but I'll take it up for you." And he did. The next day he came again and said: "I am having an awful fight with my machine. I've changed saws and it didn't do any good." Jones went with him, and, upon investigation, found the pulley loose on the arbor.

Another man came to the filing room and said: "The feed on the sander is stopped and I can't start it." Investigation showed a pinion in the train of gears dry, rusty and set on shaft, having never been oiled. In another instance the hoist would not work and the cause was similar.

The foreman says: "Jones, the elevator won't work; can't shift it up or down." Investigation showed that the brake had been set so tightly it had worked the whole shifting device back in place, and making it tight again, all went well.

Now comes the band resaw man and says: "Saw won't work and it's spoiling stock." Jones suggests that maybe the guideblocks are not straight, so takes up a wrench, loosens one and pulls it away. The saw follows it, leaving the opposite block 1/16 in. or more from the saw. He then sets one block carefully so that it just feels the saw evenly across the blade, then inserts a piece of paper, puts another piece of paper on opposite side of saw, brings the other block firmly against it, and makes fast. Jones has a quantity of the blocks always on hand, and when used till out of true, takes them to the small band, and, with a sharp saw with good corners, and a straightedge, trues them all up again. He has found that much depends on the blocks being true and well set to insure a good job of resawing.

Then comes a man and says: "I want my belt fixed. It is almost in two." Jones goes to repair it, and finds one corner so badly whipped away that it isnecessary to insert a short piece, making two points. Evidently it had been running several days in that condition. If noticed in due time it could have been repaired by resewing, thus saving one jointfi which is quite an item in keeping belts in good repair.

The variety saw man brings in a small circular and says: "I have jointed this saw; can you file it right away?" Jones puts one finger through the eye, gives the saw a whirl and looks across the teeth towards the light. And, sure enough, it is jointed, but it looks as if it had cut through a small stone pile. An emery wheel had been laid on the table over the saw, and the saw brought up so as to saw into the emery. Jones put the saw back on machine, brought it well up through the table, and, holding the emery with both hands, passed it lightly across the saw sidewise, back and forth, till the points were leveled, with good corners. Then, when filed, it cut finely.

Just then the buzz saw man came in and said: "Mr. Jones, are you very busy?" "Not so awfully; what's your trouble?" "Oh, I can't make my machine work; it only cuts on one end, and stock comes out more winding than it goes in." Jones goes to help him out of his trouble and finds the beds much out of level—neither one level with the cylinder (it was a self-feeding facer). Jones takes a straightedge and places it on rear bed, with end over the cylinder, then with the cylinder turned so the knives lie flat, he measures from knife to straightedge, and finds nearly ⅛ in. difference from end to end of cylinder. He adjusts and levels the bed to an equal distance above the cylinder clear across, then levels the front bed with rear bed. He now finds that the knives are way off, and sets them with the read bed, using straightedge. He now lowers the front bed to get the desired cut, and tries it. It works nicely, so the power feed is then put on and all is well again.

Just as Jones gets back to the file room, in comes the small band man with a 3/8-in. band, and says: "It runs all over the wheels, backward and forward. I hammered it on the machine, but it won't work. I though maybe you could fix it." Jones puts it on bench, lets it lie naturally, and brings his straightedge up to its back, which shows places convex and concave. He takes a very small cross-face hammer, and, placing saw on anvil, taps along the gullets to bring out the teeth edge, and along the back to bring out the back edge, and in a few moments takes it back to operator, who puts it on the wheels and it's alright.

Here comes a man who says: "The babbitt is cut out of my loose pulley and it's making an awful racket." It was one of those iron pulleys that oils from the rim down through a tube, closed with a plug and removed with a screwdriver. Not long since Jones had babbittee that pulley and made two plugs, putting one in and giving the extra one to the operator, with instructions to keep the plug in the pulley. But his instructions had not been heeded; both plugs were lost, and for some time the oil was thrown out on the belt by centrifugal force, and the belt was nearly ruined.

While Jones is out of the filing, in comes a man with a rod to sharpen. He holds it on the flat-face emery wheel, about the center, and continues to grind till a groove is cut into the wheel. Of course, Jones has to face the wheel before he can do a good job of grinding bits.

Here comes a man with something to cut off. Maybe it's a boring machine bit. He holds it on the corners of emery wheel till they are rounded off. The wood-turner has some tools to grind, and the wheel must be trued again. And so it goes till the wheel is used up, more by abuse than use.

A man has a greasy portion of some machine that he wants to clean or file. He takes up a good file and scours away, pulling the file as much as pushing, and soon the file is spoiled.

But the cap-sheaf was put on when the foreman told Jones to make the fan belt line up on the pulley, by driving wedges at brace ends to shift the fan, which set on a platform suspended from the second floor joist, and held in position by large rods run through gas pipes.

Jones knew the condition of the belt and pulley face was the trouble, nevertheless he drove the wedges as they should be; but the belt did not run just right, and the foreman went for him rough-shod, telling him it was wedged the wrong way; to knock them out and drive them in the other side. Jones tried to say that the belt would run off the pulley the short side, but there was no reason in the foreman, who said: "You can't show me in a hundred years." Jones did as instructed, but, of course, the matter was worse. Rather than give up, the foreman took a piece of board, forced the belt on, and nailed it there.

Fortunately, the foreman did not stay long. After he was gone, Jones repaired the belt and pulley, knocked out the wedges, and all went well.

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### Stone Walls and Stonewalls

There is a stone wall that is truly remarkable. It incloses the front and side of the fifty acres which holds the works of Henry Disston & Sons, at Tacony, Philadelphia.

It is seven feet high above ground, one and a half feet thick, two thousand feet in net length.

The stones in this wall were bought by the pound. They are not ordinary stones such as go into common stone walls. Every one of these 20,000 stones made history before it became a part of this wall.

Each stone is part of a discarded grindstone, worn down in the works which it now helps to inclose. Each grindstone gave the Disston trueness and finish to its share of saws and tools. It isn't that there was any magic in the stones as stones. Other high quality. grindstones would have answered as well. But to these particular stones has fallen the lot to perpetuate the story of nearly three-quarters of a century of advancement.

This wall represents but a few years' consumption of grindstones in the Disston works subsequent to 1900.

The stones worn down in Disston manufactures during the sixty years previous to 1900 would have formed a still more wonderful wall, many times higher, larger and thicker. All these older stones are scattered—lost. But the progressive experience and achievement that went with these sixty years' consumption of grindstones can never be lost.

There are other Stonewalls at the Disston plant. Among the 3,500 employees are twenty-one men having service records of 50 to 62 years with Henry Disston & Sons.

The significance of this roll of half century veterans, as typifying the personal integrity, experience and proportions of the Disston organization, is strengthened by the following lesser and more numerous records of service: 80 men, 40 to 50 years; 188 men, 30 to 40 years; 330 men, 20 to 30 years; and 609 men, 10 to 20 years.

Working beside the above 1,228 men are more than 2,300 younger saw and tool makers of highest skill—very largely sons and grandsons of the older men.

The pictures of the twenty-one are on our desk. It is a fine exhibit of loyalty, the uplift of many lives emenating continued quality of workmanship to the name and product of Henry Disston & Sons, Inc., Philadelphia, Pa.

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### Mistaken Economy and Resultant Inefficiency

A New York institution has as its financial manager a man who has neverr learned that economy and stinginess are not synonymous. As a conserver of the resources of the company he has performed wonderful work. In that work he displayed all the qualities of a good banker. He received all money with joy and released any of it with speed that would do credit to a dead snail. One of his duties is to hire and set the wages of fall helpers. Great joy enters his heart when one of the old employees leaves and a new one is secured at lower wages. He swells with pride when a few employees leave and he discovers that the business continues to run along without them. Five less stenographers mean that much less salary expense. When an employee forces him to give an increase in wages he regards it as a personal affront.

Of course this man lacks the three qualities without which one cannot be a great and truly successful executive. He has neither sympathy, imagination, or a sense of justice. To him the workers are as so many machines. That they are human beings, that they have human desires, that they have souls, that they are not bits of wood or metal that may be tossed recklessly about, are things he sees not.

His imagination is too weak for him to see that while the institution runs on without the fou ror five stenographers whose places are not filled, department heads are crippled in their work, important letters are delayed, big business deals are held back, that, in brief, ten dollars are lost to the institution to every dollar saved by this narrow-visioned economist.

He cannot see that his cheap help perform inefficient work, that the mistakes they make cost infinitely more than the money saved on their lower wages.

His lack of a sense of justice robs him of the ability to see the necessity of paying an honest salary to old employees who have grown more efficient, so they leave and the efficiency of the organization is lowered by the new, untrained, inefficient workers this economist secures at lesser cost.—Exchange.

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### After New Industries

The Industrial Committee of St. Thomas, Ont., has closed with two concerns for location of industries there. The Augustine Rotary Engine Company agrees to build a $100,000 factory and employ 300 men inside of five years, in return for a $50,000 loan and a free site of ten acres.

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### Business is Good in Town of Galt

The statement of building permits issued in Galt, Ont., for the six months ending June 30 shows that buildings heve been contracted for to the value of $204,032. This, with a $75,000 addition to the boiler shop of the Goldie & McCulloch Co., Ltd., represents an increase over the same period last year of $115,112.

# The Carpenter and Builder

### Estimating for the Builder

Metal lath is now as generally used as wooden lath, and it is an important item of figuring construction. The standard size of wood lath is ¼ in. x 1/ in. x 4 ft. There is a special lath, however, which is made in 32-in. lengths. Laths are sold by the thousand in bundles of 50 or 100 laths each. The price is usually around $3 per M., and 1,500 are required to cover 100 sq. yds. Allow ten pounds of 3d fine nails for 100 sq. yds. when joists are 16 in. c. to c. and 1,250 laths are usually counted a day's work for a lather. The total cost of wood lathing should be somewhere around $8.64 per 100 sq. yds. Metal lath runs in price from 2.65 to 2.84 lbs. a square yard, and the cost varies from 15 cents to 20 cents a square yard. The total cost per 100 sq. yds. for metal lathing should not be much over $18.50. These figures include the cost of scaffolding and is on a 6,000 sq. yd. basis.

Plastering is generally applied in three coats, scratch, brown and white or finish. On brick walls the scratch coat is often omitted. Plaster is made either with lime or gypsum, known also as plaster of Paris. Some plasters are made with lime gauged with Portland cement. Whatever kind of plaster is used, sand and hair are mixed with the plaster. The hair comes in paper bags which are supposed to contain one bushel of hair when beaten up, and supposed to weigh seven pounds. Some cement plasters are sold with the proper amount of hair mixed in. Cement plaster is commonly sold in 100-lb. sacks, four sacks to the barrel.

In making lime plaster one part of lime paste is used to 2 or 2½ parts of screened sand. About 1¾ yards of sand are required per 100 yards of three-coat plaster and about 4 barrels of lime or cement plaster and 2 bushels of hair. The cost of 100 sq. yds. of three-coat plaster should come to $21.20.

Excavating, front brick, stone, stucco and other exterior material varies in cost according to the charcter of the work, but none of these represent such serious leakage as do the items herein enumerated.

Flooring comes in two classes—dressed or square edged flooring, and dressed and matched flooring. The square edge flooring ordinarily has a face width of about ½ in less than its nominal width, thus a piece of 6-in. square edge flooring has a face width of 5½ inches and a piece of 4-in. flooring has a face width of 3½ inches. The loss in the case of the flooring with 5/-in. face is 9 per cent. and in the case of the 3½-in. face the loss is 14 per cent. But in addition to these mill losses there is usually waste, owing to bad ends, etc., so that after estimating the exact area of floor, 11 per cent. should be added for 6-in. flooring and 20 per cent. for 4-in. flooring. Add 17 per cent. for 6-in. flooring where dressed and matched flooring is used, 25 per cent. for the same in 4-in. flooring, 33 per cent. in 2¼-in. dressed and matched, and 40 per cent. in 1¾-in. dressed and matched flooring. Extra allowance must be made if the floor is to be laid under partitions, and if the architect has so spaced the joists that full lengths cannot be used, there may be a very large waste not included in the above allowances. This, by the way, is one of many instances where the inexperienced builder, figuring close, finds himself overwhelmed with extras. Estimate flooring less than one inch thick as one inch. Ceiling and wainscoting are estimated exactly as dressed and matched flooring is estimated.—Western Canada Contractor.

### Two Good Sellers

The cuts on this page illustrate two of the most popular doors made in Canada. The front door particularly shows a handsome appearance especially when made up in the hardwoods. The inside door is also very popular, and presents a pleasing appearance finished in any of the hardwoods, paint or enamel

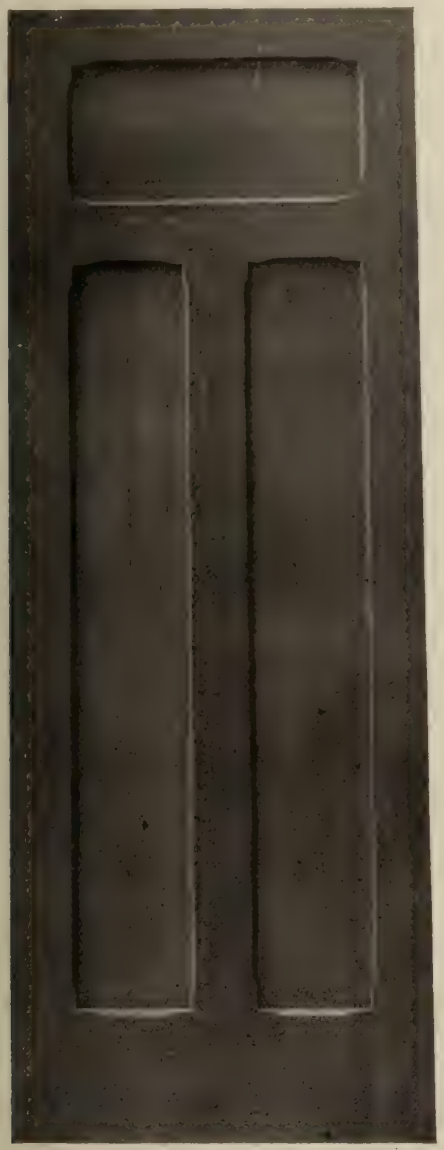
These cuts furnished by courtesy of the M. Brennan Sons Manufacturing Co. Ltd., of Hamilton, Ont.

A vast number of incorrect notions are acquired by reason of misleading names. For instance, we ask for a Dutch clock. We get the kind we want, so it really doesn't matter that it is not a Dutch clock at all, but one of German manufacture. Practically all the wooden clocks called Dutch are made in the Village of Freyburg, in the Black Forest. This misnomer is due to simple mispronunciation—"Deutsc," meaning, of course, German.

### A Noise-Proof Room

The Dutch Town of Utrecht is said to possess the only absolutely noise-proof room in the world. For a really noise-proof room it is essential, according to the theory of the constructor of this one, that not only shall no sound penetrate it from without, but also that it shall resist sound propagation, reflection and refraction within. The solution of the first problem is, it is said, comparatively easy.

The walls of the Dutch scientist's room consist of six layers alternatively of wood, cork and sand. There are spaces between the second and third layers and



between the fourth and fifth wherefrom the air has been taken. The inner walls are of porous stone covered with a kind of horse-hair cloth, a Belgian invention that is sound-resisting and widely used in Belgium in telephone booths. The walls are pierced by acoustically isolated leaden rods.

The roof is composed of layers of lead, wood, asphalt paper, sea-grass and cork. The floor is of marble and is covered with a thickly woven Smyrna carpet.

The silence of the tomb always reigns in this elaborate construction, and it is used for clinical studies only.

### Poplar a Good Wood to Paint

Poplar lumber has an affinity for paint that never has been equaled by anything except the white pine of the North, which is no longer available in its good oldtime quantities at reasonable prices.

This fact may not seem startling or have the element of newness, but it is an important point that the purveyors of poplar lumber well may keep alive and working, in this day of competitive advertising and boosting of woods and claims all kinds of superiority for some that are offered as substitutes.

Poplar not only takes paint better, but it holds it better than almost any other wood available, and this makes it a very desirable material for planing mill work, frames and outside work of all kinds in house construction. It should also commend its use for interior finish where paint is to be used, or where the enamel effect instead of natural is to prevail.

Poplar not only takes paint better, but it works better and stays put. When it is once thoroughly dry it is comparatively free from warping and has many other good qualities, not the least of which is its affinity for paint. The ease with which it can be painted and the tenacity with which it holds its paint, should enable the salesman handling a good line of poplar to get the preference in the planing mill trade and also in lots of cabinet work. It is merely a matter of keeping poplar good points alive and working. The fact that others make the claim that their lumber is as good as poplar, is in itself a confession of the superiority of this well-known wood.

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### Method of Razing High Chimneys

The originator of an interesting method of razing lofty chimneys in England is credited with having felled, without accident, more than one hundred chimneys which for one reason or another had become useless. Some of these were from 200 to 250 feet in height.

The method consists in removing the stones or brick near the foot of the chimney and substituting an underpinning of wood, which is afterwards set on fire. About two-thirds of the area of the base is removed up to a height of 5 or 6 feet, so that most of the weight rests upon the underpinning. Experience has shown that when the work is properly done the chimney leans slightly toward the side where the underpinning is inserted, and when a slight crack appears in the masonry on the opposite side the time has come for the fire to be applied. As the chimney falls it partially telescopes in consequence of the shock produced by dropping into the void left by the burned timbers.

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The results of carelessly handling lumber in woodworking plants simply mean the elimination of quality. It will eliminate, or at least impair, the quality of the product of any concern, no matter how carefully the material be selected nor how good the machints that do the work. Or, to study it another way, the main elements of skill are practice and carelessness. We can't help getting the practice if we continue at tht work, but there is always a chance to lose the carefulness, and too many people do, in time, let it get away from them. Not only that, but they fail to note results as they should, otherwise there would not be so much carelessness. Study this. See if you cannot demonstrate for yourself that a whole lot of what is termed skill really consists in careful atttntion to every detail.

### The World's Largest Building

The first day of July the topmost piece of steel work was riveted in place on the Woolworth Building in New York. This structure is notable as being the loftiest building devoted to business purposes in the world. From the sidewalk to the top of the cupola is 750 feet, which is 50 feet more than the height of the Metropolitan Biulding in that city, and 138 feet more than the height of the Singer Building tower, also in New York. The building contains fifty-five storeys in the tower. It is of the standard steel column and floor beam construction; but in order to take care of the enormous dead load and the great wind load, the columns are necessarily of unprecedented size.

### Water and Oak

There is a pretty generally accepted idea that to soak oak, either logs or lumber, in water, adds to its qualities and makes the drying or seasoning easier. In fact, this is a pretty well established practice at many places. Yet it is not so long ago that the writer met a man, a worker of oak, who knows his business thoroughly, who claims that water causes oak to darken. This man is a maker of fine floors. He says he has used water-soaked lumber, from rafted stock, and had it turn black in the floors afterward. He has met this trouble often enough to know it was not an accident. In his mind it is an established fact that water, while it may at the time seem to keep oak from staining, finally results in making it darker.

In connection with floors, we know that when either water or kerosene gets to a dry, finished floor, gets through the finish to the wood, it and the acids in the wood proceed to form an inky-black substance that discolors the wood. Therefore, we might argue that in the case of the floors it was simply a matter of moisture getting to them after they were laid and finished. Yet we know that in water-storing hickory handle stock to guard it from insects, there is a loss of the whiteness that is so desirable in this stock; the water deadens it and tends to bring the white and the red woods to the same dull shade. It may be, therefore, that we have been overlooking some of the finer points of the effects of water on green oak, either in the log or as lumber.

But there is the veneer-cutting business, that involves the use of steam and water in preparing the stock for cutting. If the moisture always has a darkening tendency its effect should be seen in all cut veneer. Yet this is a point seldom complained of. After stock is cut and dry, exposure to moisture is likely to result in staining, or if freshly-cut stock is bulked down without drying, in summer, it soon stains; but if it is properly cared for and dried, there is seldom complaint on this score. After all, though, it is possible that we have not gone as thoroughly as we might into the chemistry of wood and water. There may yet be come things worth learning along this line.

### Glue Sizing Saves in Painting Weathered Surfaces

Every one who has had to do with painting old weather-beaten boards, brick and stone walls, knows it requires a vast amount of oil for the primary coat, and two subsequent coats to do a good job. Now a job that will last just as long and look as well as three coat work on old buildings may be done with two coats of oil paint, which will save, perhaps, half the oil, at least one-fourth.

Make a size in the proportion of one pound of ground glue to one gallon of water. If the surface is very bad, use a little more glue. Allow the glue to soak in cold water over night or longer. Then melt it in hot water. Have the water just hot enough to melt the glue thoroughly. If the water is too hot it destroys the tenacity of the glue to some extent.

If the subsequent coats are to be in light tints, stir in some whiting, enough to show a little when brushed on. If it is a brick wall that is to be finished in red, use Venetian red instead.

Keep this cizing warm, and brush on with a large brush. This will fill all the small cracks, and two coats of oil paint will make a good job.

A job one in this way will stand any ordinary exposure just as well as three coats of oil paint. The writer, during his thirty years experience as a painter, has always had good results by this method. Why won't it stand? Because the moisture will affect the glue, you say. Let me tell you, if the work absorbs enough moisture to affect the glue, the same would destroy any oil paint also. No. There is no danger of any trouble from the glue. A first coat of glue sizing and color will stand anywhere that oil paint will. Furthermore, a coat of glue sizing and color fills better than oil priming, consequently a smoother job when finished.

### Unit Cost of Buildings

In a woodworking plant designed by Lockwood, Greene & Co., architects and engineers for industrial plants, Boston, the main shop, two storeys high, is of regular mill construction with brick walls, plank and timber floors and roofs and wooden columns. The building is rectangular, 305 ft. by 155 ft. and is surmounted by a monitor 200 ft. long and 50 ft. wide. The total floor area was 94,550 square feet, and the cost of the buildinf complete figured out at 84 cents per square foot, this cost covering construction, plumbing and drainage. The cost per cubic foot was 4.9c. based upon a total volume of 1,641,000 cubic feet.

### Odd Room is Found

London. A fugitive room has been discovered at the Fferm Farm, near Mold, Flintshire, a building dating from the early part of the sixteenth century, and once the manor house of the Hartsheath estate.

While repairing an old fireplace and chimney the workmen accidently uncovered a revolving stone. When this was moved it revealed a hidden chamber, which had been quite unknown to the inmates of the house.

The room was fitted with antique oak furniture, including a table, on which were antiquated weapons and feeding utensile, as well as the remains, withered to dust, of some food.

### Present from Fellow Workmen

Mr. Matheas Follick, a polisher in the finishing room of the Globe-Wernicke Company, who lately joined the ranks of the Benedicts, was presented with a set of dining-room chanrs by his fellow workmen. The gift was a handsome rememberance of the esteem in which Mr. Follick is held among his fellow employees.

### Shop Standards

Modern methods of cost-keeping are furnishing data for other beneficial results than merely those of finding and understanding definitely the cost of manufacturing. They furnish a means for establishing standards of capacity for workmen.

### Measuring and Recording of Capacity

That is something that we have admittedly been in need of for a long time in the industrial world, some standards of measurement of capacity and efficiency for workmen so that it may be known when a man is qualified to receive a maximum of wages in his calling. It should prove beneficial to both manufacturers and competent workmen. There are some workmen who object to things of this kind because they see in it the old task idea in a new guise, and for that matter it does take some courage to face a task record.

By keeping detailed accounts on work, and the cost of work from time to time, the figures are easily available for establishing an exact record of the production from the different sources. From them in the course of time we should be able to get at authentic standards of capacity for operators of various machines and doing the several classes of work.

That is what the woodworking industry should make a point of doing—of setting out in specific tabulated form what the records show to be an average day's work, with any specified machine or at any given class of cabinet work. There would naturally have to go with this some maximum and minimum records to get the gauge of variation, but out of it all we can establish excellent and reliable standards of measurement as to the capacity of men, which should be invaluable records to any manufacturing institution.

### Standards of Shop Efficiency

All this will to a certain extent give some ideas also of standards of efficiency as a certain per cent. of efficiency is displayed in comparison. It will not, however, give an absolute standard of efficiency, because efficiency covers other things besides capacity. Some man in a planing-mill or furniture factory may turn out the average capacity of work and yet not do it properly. The work may be poorly machined, poorly put together, or poorly finished. These are things that must be counted in any efficiency test; not apart from, but in connection with, the capacity record.

However, the establishing of capacity standards is a big step in the right direction, and it will require only a little more systematic work along the same line. It will simply be a matter of taking note of the class as well as the quantity of work turned out to soon establish fairly good standards of both capacity and efficiency. At the same time it furnishes a gauge to the manufacturer by which he can measure men, it will furnish standards for the skilled workman that will be fully as beneficial to him as to the manufacturer. He will be able at any time to demonstrate by comparison just where he is at in the scale of efficiency and capacity, and through this means he will be able to know his own worth. Indeed, if the matter is followed up in the right spirit and followed thoroughly and persistently, the beneficial results of modern cost-keeping in the way of establishing standards of capacity and efficiency for men should be even greater than the prime object, that of demonstrating the exact amount of cost involved in a given work.

### Pulp Authority Visiting Coast

One of the delegates who have just returned from the Dominion Forestry Convention at Victoria, is Mr. C. M. Small, of the Laurentide Company, of Quebec, said to be the largest pulp and paper concern in Canada. Mr. Small has been on the Pacific coast for more than a month looking into business matters and incidentally attended the convention. As superintendent of wood lands and in charge of the logging operations of the company, he was vitally interested in the work of the convention.

The Laurentide Company operates in the St. Maurice River Valley, where it is estimated there are 10,000 square miles of timber land, the company owning 2,200 square miles of this. The president of the concern is Sir William Van Horne.

The various companies operating in the St. Maurice Valley, said Mr. Small, have formed an association for their mutual fire protection, maintaining their own officers as required under the provincial regulations. This procedure has been followed with complete success.

The wood that is cut consists mostly of white pine and spruce for pulp making purposes. The larger trees are cut down, but the younger ones allowed to grow up, thus conserving the forests for ever.

### Future Generations

The St. Maurice Valley is one of the most active sections in the whole of Quebec, and it is estimated that more than three million logs are floated down the St. Maurice River annually. There are four big pulp and paper mills in operation and another plant under construction. The main products of the St. Laurentide Company are news paper, graft paper for wrapping purposes, cardboard and wood pulp (sulphite, sulphate and mechanical). There are also several huge sawmills producing millions of feet of deals and boards of white pine and spruce for export to English markets.

The Laurentide Company employs 2,000 men annually and its daily output is 250 tons of paper. No less than 75,000,000 feet of timber a year is used.

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### Wants More Optimism in New Brunswick

Some of the optimism and energy found in the west ought to be transplanted in New Brunswick, thinks Hon. John Morrisy, Commissioner of Public Works for that province, who is on his way to the Forestry Convention in Victoria, B.C.

The natural resources of New Brunswick are sufficient, to put it in the first place in Canada, but much of their money is lying idle in savings banks at three per cent. when it might be earning more. In the lumber and fishing industries, very valuable resources are to be found. Each year 125,000,000 logs are floated down the St. John River, and more than that down the Northwest Miramichi and Southwest Miramichi rivers.

Te new line of railway from St. John to Grand Falls will be finished in three years, and will open up a section of the country that needs transportation.

Mr. Morrisy believes that reciprocity will play a leading part in the next general election as there was considerable feeling in favor of it in his porvince.

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John E. Moore, St. Johns, N. B., has bought out the Canadian Woodenware Company at South Bay, N. B. He plans to make a number of improvements and to erect a modern sawmill near the pail factory.

# From Coast to Coast

### Factory to be Renovated

The factory which Mr. Paul Bennewitz is vacating at Stratford, Ont., is to be renovated from top to bottom, and it is understood that Mr. J. J. Mason, of the Globe Wernicke Company, is behind the proposition, and if such be the case, there is no doubt that the operations mean business.

When the additions and new arrangements for greater floor space are finished the factory will equal in size about two-thirds of the Globe Wernicke factory, as the addition itself will be 36 feet by 60 feet. Hardwood floors are also to be put in throughout.

About one hundred to one hundred and twenty-five hands can be easily employed, judging from the size of the new building, and as new machinery worth five to six thousand dollars is being installed, the whole amount being expended will pivot between twelve and fifteen thousand dollars.

It is understood Mr. Bennewitz has rented a flat in the Kemp Building and still intends manufacturing principally piano stools. It was stated that although the Bennewitz Manufacturing Company, Ltd., will not be connected with Mr. Bennewitz they would not interfere in his line of goods, so giving him every chance of any start that can be had. With Mr. Bennewitz in the Kemp Building and the Bennewitz Company in the renovated Cordage Company factory, Stratford will be possessed of two new industries.

From what could be inferred from one of the members of the new company the work will be in full swing by the 15th of October, the machinery being on the way at the present time.

The steam plant which has lain idle for the past six or seven years when the Cordage Company vacated the building, will be used for power.

### Sawmill to be Built

A deal has just been culminated whereby thirty acres of land on the lake shore, just outside the town limits of Haileybury, Ont., has been sold to the Lake Expanse Lumber Company, who will erect one of the largest sawmills in the north country.

The property embodies part of the C. C. Farr property and borders on the lake shore at Moore's Cove. The new company is composed of Ottawa, Renfrew and Haileybury residents. The new company has purchased a timber limit of about one hundred square miles in the province of Quebec, from which they will take the lumber to Lake Temiskaming and then float it over to the new plant which will be erected next spring.

Work on the building of the sawmill will be commenced early next spring, and it will be ready for use the following year. The mill is designed to have a capacity of 10,000,000 feet during the season, or about 100,000 feet daily, and will give employment to about one hundred men. The building will be an up-to-date one in every respect although the plans and specifications have not been prepared. It will cost in the neighborhood of $25,000.

The property purchased by the new company is on the spur line of the T. & N. O., or Nipissing Central extension to New Liskeard, and a further short spur will lead to the company's premises when they are ready. It is not the intention of the company to do much cutting on the limit during the coming winter months, but next winter they will take out a large cut of logs which will be sawn at the mill the following spring and summer.

### The Employers Must Bear Burden

Sir William Meredith's interim report on the proposed workmen's compensation legislation has been issued, and although it is not the final word upon which the new Act will be based, yet it is a copious blue book of 500 pages.

The commissioner point out that he is not yet in a position to make any recommendations as to the formation of an act, but has already taken sufficient evidence to justify his statement that the Ontario law is entirely inadequate to cope with the conditions under which industries are now carried on. It is also practically impossible to provide just compensation for men employed who may meet with an injury.

"It is satisfactory to be able to state," says Sir William, "that there is practical unanimity on this point, and that those who speak for the employers concede the justice of the claim made on behalf of the employees that the industries should bear the burden of making compensation.

"The employers, however, contend that the whole of this burden should not be borne by them, but that the employees should share it, and suggest as a fair contribution by the employees ten per cent. of the amount required to provide for the compensation. This compensation is strenuously opposed by the employees, who take the position that the whole burden should be borne by the employers. The basic principle that the burden be borne by the industries being conceded, the question arises as to what form the legislation necessary to give effect to it should take."

### Mutual Insurance

The report states that the employers incline towards a scheme of mutual insurance, under a board appointed by the Crown, and that the industries should be divided into groups or classes, with special rates for each. The employees are also favorable to this plan.

Simplicity must be the dominant feature controlling the machinery of administration of the scheme in the matter of collecting assessment and adjusting claims. The commissioner advocates the use of municipal bodies in this regard.

### Sash and Door Factory Burned

Twenty thousand dollars' worth of property was destroyed by fire in Leamington recently. The fire department was called into service at 2.15 a.m. to fight the flames. Fire was discovered issuing from the engine room of the Ludlam-Ainslie Lumber Company's sash and door factory shortly after 2 o'clock, and at 3.45 the entire plant, stock and building, lay within the walls a mass of cinders, ashes and wrecked machinery. The factory has been rushed all summer with work and was filled with building orders owing to the activity in the building operations in Leamington this year. Contractors' work will be held up on between fifty and sixty houses in different stages of construction until the factory can be rebuilt. Every available carpenter has been working full force here for months. Hundreds of them, besides factory hands, will be thrown out of employment for the time being. Fortunately

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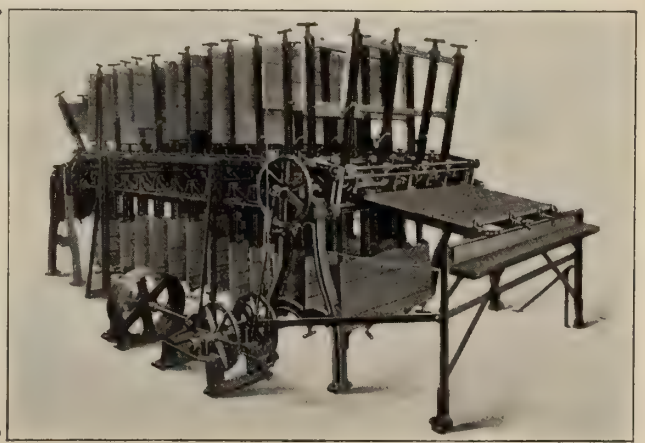

there was no wind or there would have been other heavy losses.

### Big Lumber Deal Completed

One of the biggest deals which has been consummated this year, affecting the lumber business in Southern Alberta, was closed recently when the Farmers' Lumber Company sold out their outside yards to the Citizens and Pioneer Lumber companies, which are now practically merged, with their head offices in Lethbridge. Ten yards are affected; those sold are at Grassy Lake, Purple Springs, Winnifred, Whitla, Milk River, New Dayton, Magrath, Diamond City, Taber and Burdett; the Lethbridge yard is retained by the Farmers' Lumber Company. No figures as to the amount of money involved in the deal have been made public.

Peter Lund, president of the Farmers Lumber Company, was in Lethbridge a few days ago from Cranbrook, practically closing the deal.

The Farmers Lumber Company is closely connected with the big lumber interests of Peter Lund in the mountains, and it was because they were engaged in the wholesale lumber business that they disposed of their outside holdings here. They will retain the Lethbridge yard, and will probably make Lethbridge a distributing point for their mountain mills.

### Veneer Factory Prey to Flames

The large veneer factory, mills, drying kiln and drying sheds of the Niagara Veneer and Basket Company, and George Neibergall & Son, as well as the lumber and part of the logs in the yard, were entirely destroyed by fire which broke out on September 11 in the noon hour, while the workmen were absent at dinner. When the blaze was discovered the flames had spread with such rapidity that it was impossible to save either outbuildings or yards, and several boathouses were also swept away.

The loss is estimated at $100,000, with insurance of $25,000. The machinery for the manufacture of the class of goods which were turned out is heavy and expensive, and the fire will throw about thirty men out of employment.

A quantity of finished product was loaded on cars ready for shipment, but so rapid was the spread of the flames that the cars could not be removed.

### Died of Fall of Two Weeks Ago

As a result of injuries received two weeks ago when he fell two storeys from a window in the Firstbrook Box Factory, East King street, Toronto, John Mitchell, of 92 Carlton street, died in the General Hospital from a fractured skull. Mitchell, who was an employee of the company, was cutting a board on a machine when he gashed his finger. Sickened by the sight of blood he went to a window to get a breath of fresh air. While resting on the sill he collapsed and fell on the pavement, two storeys below.

### Addition to Carriage Factory

The McLaughlin Carriage Company, of Oshawa, have taken out a permit to build an addition to their factory, two storeys high, 250 ft. x 50 ft. Their present manufacturing facilities are inadequate to meet the increasing demand for McLaughlin products. This large addition to an already enormous factory is an excellent indication.

### Erecting a New Mill

Mr. R. B. Smith, of Oromicto, N.B., is erecting a new mill below the Thoroughfare Bridge at Lakeville Corner. About the first work done by the mill will be to manufacture for market about 200,000 feet of logs which Mr. Smith had carried away in the midsummer freshet.

### Injured in Lumber Mill

Internal injuries were suffered by Archie Briden, of Toronto, when a board from a circular saw in the Laidlaw Lumber Mills flew up and struck him in the stomach. Aside from the bruises the nature of his injuries was not ascertained at the hospital, but his condition is not believed to be serious.

### Aurora Wants Industry

A vote of the municipal ratepayers was taken at Aurora, Ont., on a by-law to grant a loan of $15,000 to the Collie-Cockerill Manufacturing Company, and resulted in 256 affirmative votes and 17 against.

The company will commence building operations at once and will employ from 60 to 75 hands. They will manufacture office furniture.

### Kingston Needs Houses

Kingston is in great need of workingmen's houses. One hundred are needed by next summer and thirty must be built at once. The board of trade and civic finance committee named a committee to raise $50,000 for the work.

### Rapid Growth in Guelph

The total amount of building permits issued by the City Engineer's department for 1912 up to date was $211,786. For the month of June there were permits issued for work valued at $38,150. It is expected that the total mark for the year will reach $500,000.

### Frame House Built in 1618

The oldest frame house in the United States located at Southampton, N.Y., has just been torn down by order of the authorities, who declared it was no longer safe for occupancy. The house was built in 1618 by Thomas Sayre, an Englishman, who came to this country in Cromwell's time.

### Lumber Burned

A blaze occurred in a pile of lumber at 444 Quebec avenue, Toronto, owned by Joseph Reid. The pile contained nearly 3000 feet and three sleighs which were nearby were also burned. The damage, which amounted to about $200, was not covered by insurance.

### A Big Maple

A maple tree, 8 feet in diameter at the stump and 5 feet in diameter 87 feet above the stump, without a knot or limb within the 87 feet, was purchased as it stood near Murphy, N.C., thirty miles from a railroad, by Mr. J. M. Buchanan, of Brasstown, N.C. It cost Buchanan $400 to have the tree cut, divided into sections and hauled to the railroad, but 16,000 feet of lumber was scaled from it. The sections made a solid car load and were sent north to be turned into veneer.

# OPPORTUNITIES

**Advertisements inserted on this page for "Positions Vacant" or "Positions Wanted" twenty-five cents per insertion.**

### Industrial Accidents

According to the record of industrial accidents maintained in the Department of Labor that for the month of August showed that 88 workmen were killed and 305 injured, compared with 108 fatal and 272 non-fatal accidents during the month of July; or a decrease of 20 in the number of fatal and an increase of 33 non-fatal accidents compared with the record for July. The largest number of fatalities occurred in the building trades and in the steam railway service, there being 11 workmen killed in the former, and 25 in the latter. In the metal trades and steam railway service, the largest number of non-fatal accidents occurred, the record being 65 in the case of the former and 53 in the latter.

### Toronto Factory Burned

Shortly before 2 o'clock on the morning of September 18 the showcase factory owned by H. L. Wood & Company, at 18 Cameron street, took fire, and in a few minutes the entire building was in flames. Fed by a large stock of hardwood and pine, used in the manufacture of showcases, the flames spread with great rapidity, and the frame building was entirely destroyed. The building is situated in a congested district, and hundreds of people were awakened by the noise of the firemen. The alarm of the fire was rung in from several boxes in the vicinity, and soon the lines of hose were playing on the fire.

The damage, it is estimated, will amount to about $10,000.

### Warnings

The Manchester Steam Users' Association issues the following:

Don't overload the safety valves or tamper with them.
Don't let the water level sink out of sight.
Don't allow the cocks and valves to set fast.
Don't open the steam stop valves hurriedly.
Don't empty the boiler while steam is up.
Don't open manholes before easing safety valves.
Don't raise steam hurriedly.
Don't use unknown scale solvent or compositions.

**Furniture and Show Case Manufacturers and Builders**

**ATTENTION**

We carry in stock a full line of Hardware Specialties for the manufacture of Show Cases, Counters etc., Furniture and Cabinets, Sash and Doors.

Our Catalog illustrates our numerous specialties and is complete with prices. Send us your name and address so we may send you one. We can very probably save you money on your present purchases.

**The Reflector & Hardware Specialty Mfg. Co.**
Western Ave. and Twenty Second Place, Chicago, Ill.

## Manufacturers

Know that good work depends to a great extent upon good workmen. If you wish to get in touch with this class of men insert your want ad. on this page—the best men in the woodworking trade read it.

---

Position wanted, as band and circular saw filer. It does not make any difference what gauge width, length, or diameter the saws are. Satisfaction guaranteed. References O.K. Married. Box 39, Canadian Woodworker.

---

Wanted—Well experienced foreman thoroughly posted in manufacturing of hardwood flooring can get immediate position at mill running whole year. Apply to Hardwood Planing Mills, Head of Tide, N.B., giving particulars of former employment and references.

---

Filer—Responsible position wanted as band and circular saw filer. Have filed log bands, upright and horizontal resaws, and in general I have ground band saw poulies, planer knives, and filed saw mill and factory saws to satisfaction. I guarantee you full capacity of your saws, minimum carf, no cracks, no crooked lumber or bad resawed stock. Prefer a steady position. Age 30. Married. Address Box 43, Canadian Woodworker.

---

"We offer the following machinery in good repair for sale cheap;—

1, 24-in. 2 Drum Fay Sander.
1 6-ft. Moore Stroke Sander.
1, 76 x 30 Power Veneer Press.
Several 50 x 26 Screw Veneer Presses.

Apply, Hay & Company, Woodstock, Ont."

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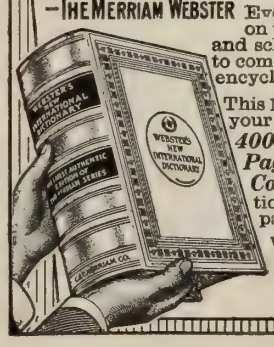
"Just the Information We Need"

**WEBSTER'S NEW INTERNATIONAL**

—THE MERRIAM WEBSTER



Every day in your talk and reading, on the street car, in the office, shop, and school some new question is sure to come up. You seek quick, accurate, encyclopedic, up-to-date information.

This NEW CREATION will answer *all* your questions with *final* authority. *400,000 Words Defined. 2700 Pages. 6000 Illustrations. Cost $400,000.* The *only* dictionary with the new divided page. A "Stroke of Genius."

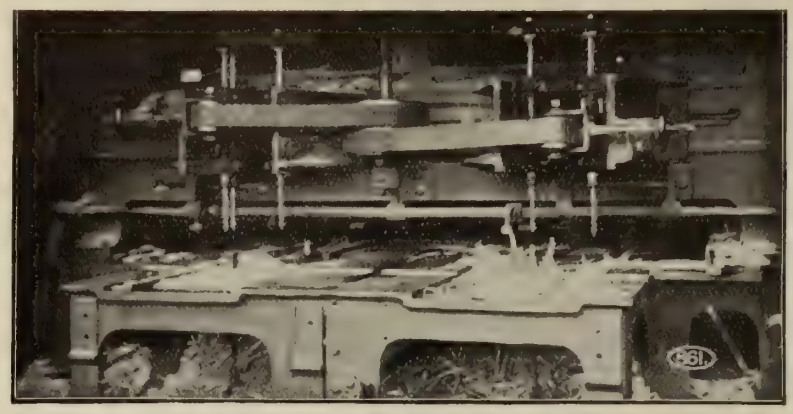
Write for specimen pages, FREE.

**G. & C. MERRIAM CO.,**
SPRINGFIELD, MASS.

**WANTED**

A lumberman or practical builder with 5 to 10 thousand dollars. A rare opportunity for a man of ability of either kind.

**Box 44, City Heights, Vancouver, B.C.**

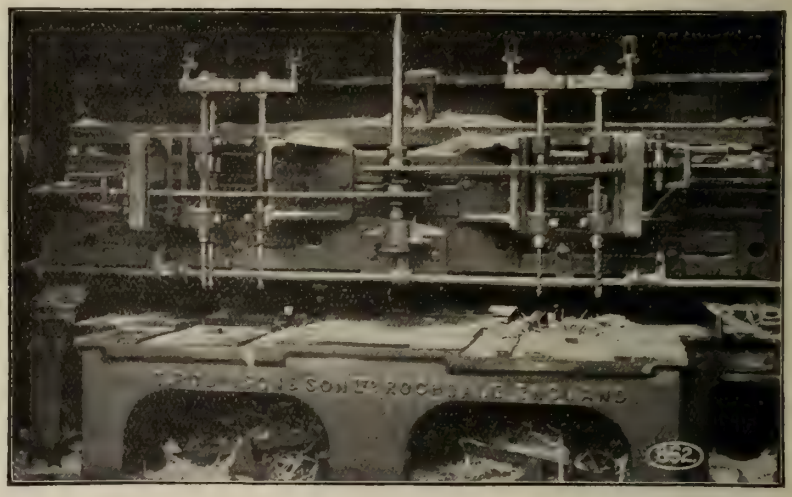


# Renold Patent Steel Driving Chains

## OVERCOME TRANSMISSION TROUBLES

Upper illustration shows leather belts driving an adzing and boring machine. Trouble was experienced with the belts.

The lower cut shows the same machine equipped with RENOLD CHAINS which not only overcame the trouble but increased the production over 30% and resulted in the users equipping in a similar manner all their machines.



**Write for catalog and particulars**

## Jones & Glassco

(Registered)

Canadian Agents

**200 St. Nicholas Bldg., MONTREAL**

THE COPPER COATED CAKE

*To what base uses we may return.*
*Imperious Caesar dead and turned to clay,*
*May stop a hole to keep the wind away.*
*—"Hamlet."*

### IF SHAKESPEARE

Saw our advertisement he might exclaim, "How appropriate is that quotation," but if he knew the good qualities of

## HARRIS HEAVY PRESSURE

"The Babbitt Metal without a fault" he would appreciate the use we make of his immortal writings.

### ENGINEERS KNOW

**HARRIS HEAVY PRESSURE makes a bearing that will last and is the BEST BABBITT for all general machinery bearings.**

**Send to our nearest factory for sample box. Manufactured and Guaranteed by**

# The Canada Metal Co., Limited

Head Office and Factory
TORONTO

Branch Factories
MONTREAL and WINNIPEG

# It Rips to Pay

**This machine does the work of three ordinary benches**

and is indispensible for ripping stock of all description.

It can be worked with **one, two** or **more** saws.

Giving feeds of **40, 60** and **80** feet per min. saves floor space.

Can we send you further particulars?

*Let us quote you.*

**T. White & Sons Limited**
**Engineers**

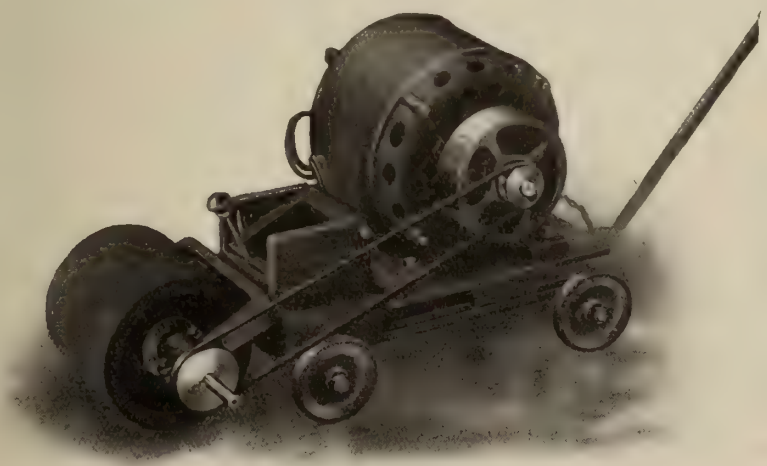
**Paisley - Scotland.**

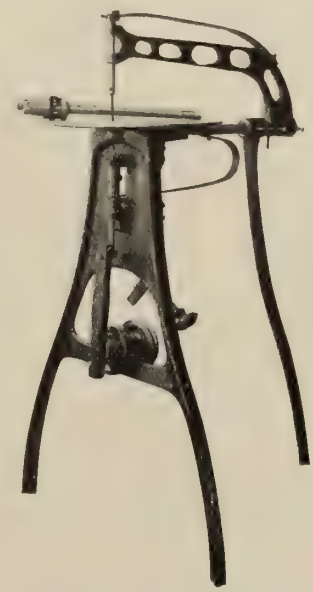
Telegrams:—White, Paisley.
Code: A B C on all Government lists.

# The Elliot Floor Sander

**RUNS BY ANY CURRENT**

**For Sanding and Polishing Hardwood Floors**





**The Elliot Scroll Saw and Shaper**
cuts 2 in. thick runs by any ¼ or ½ horse motor or any power drive. The shaper can be set up in five minutes.

Write for particulars to

MANUFACTURERS OF THE ELLIOT WOODWORKER

**W. A. ELLIOT** **Corner Bathurst and College Streets** **Toronto, Ont.**

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Canada Metal Co., Ltd., Toronto.

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Thos. White & Sons, Paisley, Scotland.
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Canada Machinery Corp., Ltd., Galt, Ont.

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Chicago Machinery Exchange, Chicago, Ill.
Shurly Dietrich Co., Ltd., Galt, Ont.
The A. J. Burton Saw Co., Ltd., Vancouver, B. C.
R. H. Smith Co., Ltd., St. Catharines, Ont.

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Chicago Machinery Exchange, Chicago, Ill.
Berlin Machine Works, Ltd., Hamilton, Ont.
Fay & Egan Co., Cincinnati, Ohio.
The A. J. Burton Saw Co., Ltd., Vancouver, B. C.
H. W. Petrie, Ltd., Toronto.

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Fay & Egan Co., Cincinnati, Ohio.

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### BELTING
J. A. Fay & Egan Co., Cincinnati, Ohio.
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H. W. Petrie, Ltd., Toronto.

### BELTS (Endless)
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Sadler & Haworth, Montreal.
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H. W. Petrie, Ltd., Toronto.

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Sadler & Haworth, Montreal.

### BELT FASTENERS
Sadler & Haworth, Montreal.

### BELT DRESSING
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### BLOW PIPING
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E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

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### CHAINS (Silent)
Jones & Glassco, Montreal

### CLAMPS (Chain, Carpenter, Cabinet, Pattern Makers, Bench, Mitre, Piling, Mounted and Rotary Wheel)
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Berlin Machine Works, Ltd., Hamilton, Ont.
Simonds Canada Saw Co., Montreal.
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The A. J. Burton Saw Co., Ltd., Vancouver, B. C.

### CLUTCHES
J. A. Fay & Egan Co., Cincinnati, Ohio.

### COLUMN CLAMPS
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### COLUMN MACHINERY
Chicago Machinery Exchange, Chicago, Ill.
J. A. Fay & Egan Co., Cincinnati, Ohio.
C. Mattison Machine Works, Beloit, Wis.

### CORE BOX MACHINES
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Chicago Machinery Exchange, Chicago, Ill.
E. & B. Holmes Machinery Co., Buffalo, N.Y.

### CUT-OFF SAWS
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Shurly Dietrich Co., Ltd., Galt, Ont.
Chicago Machinery Exchange, Chicago, Ill.
Berlin Machine Works, Ltd., Hamilton, Ont.
Simonds Canada Saw Co., Montreal.
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J. A. Fay & Egan Co., Cincinnati, Ohio.
Ober Mfg. Co., Chagrin Falls, O.
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E. & B. Holmes Machinery Co., Buffalo, N.Y.
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Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
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C. Mattison Machine Works, Beloit, Wis.
Samuel J. Shimer & Sons, Milton, Pa.
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E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Limited, Toronto.

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C. Mattison Machine Works, Beloit, Wis.
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### DOVETAILING MACHINES
Berlin Machine Works, Ltd., Hamilton, Ont.
Chicago Machinery Exchange, Chicago, Ill.
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Canadian Linderman Machine Co., Ltd., Woodstock, Ont.
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### DOWEL MACHINES
Thos. White & Sons, Paisley, Scotland.
Canada Machinery Corporation, Ltd., Galt, Ont.
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J. A. Fay & Egan Co., Cincinnati, Ohio.
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Valley City Machine Works, Grand Rapids, Mich.

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E. & B. Holmes Machinery Co., Buffalo, N.Y.
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Canada Machinery Corporation, Ltd., Galt, Ont.
H. W. Petrie, Limited, Toronto.

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Canada Machinery Corporation, Ltd., Galt, Ont.
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**GLUE SPREADERS**
Chicago Machinery Exchange, Chicago, Ill.
J. A. Fay & Egan Co., Cincinnati, Ohio.

**GRINDERS (Cutter)**
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Chicago Machinery Exchange, Chicago, Ill.
J. A. Fay & Egan Co., Cincinnati, Ohio.
The A. J. Burton Saw Co., Ltd., Vancouver, B. C.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Limited, Toronto.

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J. A. Fay & Egan Co., Cincinnati, Ohio.
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E. & B. Holmes Machinery Co., Buffalo, N.Y.
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Samuel J. Shimer & Sons, Milton, Pa.
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H. W. Petrie, Limited, Toronto.

**LACE LEATHER**
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Chicago Machinery Exchange, Chicago, Ill.
J. A. Fay & Egan Co., Cincinnati, Ohio.
Valley City Machine Works, Grand Rapids, Mich.
H. W. Petrie, Limited, Toronto.
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Berlin Machine Works, Lid., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Chicago Machinery Exchange, Chicago, Ill.
J. A. Fay & Egan Co., Cincinnati, Ohio.
C. Mattison Machine Works, Beloit, Wis.
Ober Mfg. Co., Chagrin Falls, O.
Valley City Machine Works, Grand Rapids, Mich.
Baxter D. Whitney & Son, Winchendon, Mass.
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**LOOSE PULLEYS**
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J. A. Fay & Egan Co., Cincinnati, Ohio.
Canada Machinery Corporation, Ltd., Galt, Ont.
Simonds Canada Saw Co., Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Limited, Toronto.

**MITRE CLAMPS**
Black Bros. Machinery Co., Mendota, Ill.
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Berlin Machine Works, Ltd., Hamilton, Ont.
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Chicago Machinery Exchange, Chicago, Ill.
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Jones & Glassco, Montreal.
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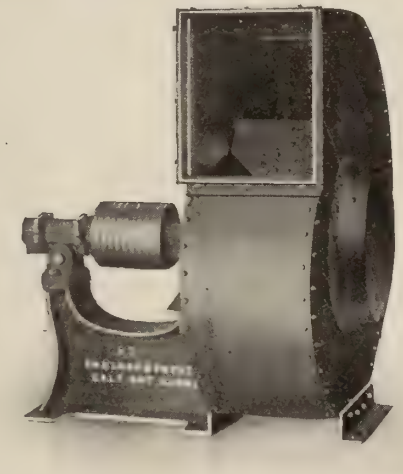

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# Fast Feed Cutter Heads

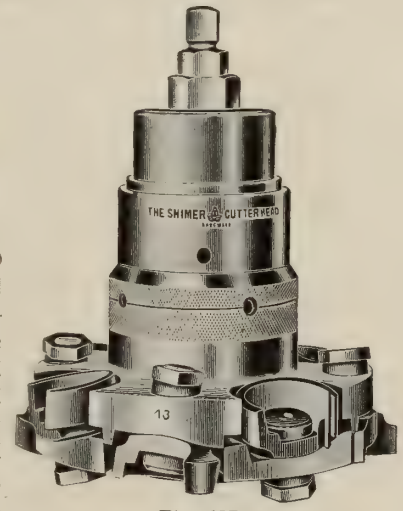


Fig. 627.

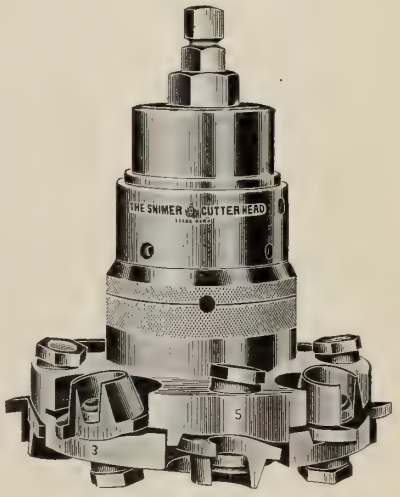


Fig. 628.

The "Shimer Limited" with Expansion, price $72.46 per set, complete.

To match Flooring at the rate of 150 to 170 lineal feet per minute steadily all through the day, and do good work, requires Cutter Heads built especially for the purpose. They must be of undoubted strength to withstand working strains and the power of centrifugal force. They must be so designed in the bit seats and Bits that the work is easy for the Heads, else their usefulness is of short duration.

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We recommend these Heads as safe and efficient tools for matching flooring, etc., at high speeds. If you have a machine that will swing them and feed 150 feet or more per minute, you should increase your output by using them.

We are prepared to execute promptly all orders sent us, but would request that specifications be sent us as far in advance as possible. Mail them to-day.

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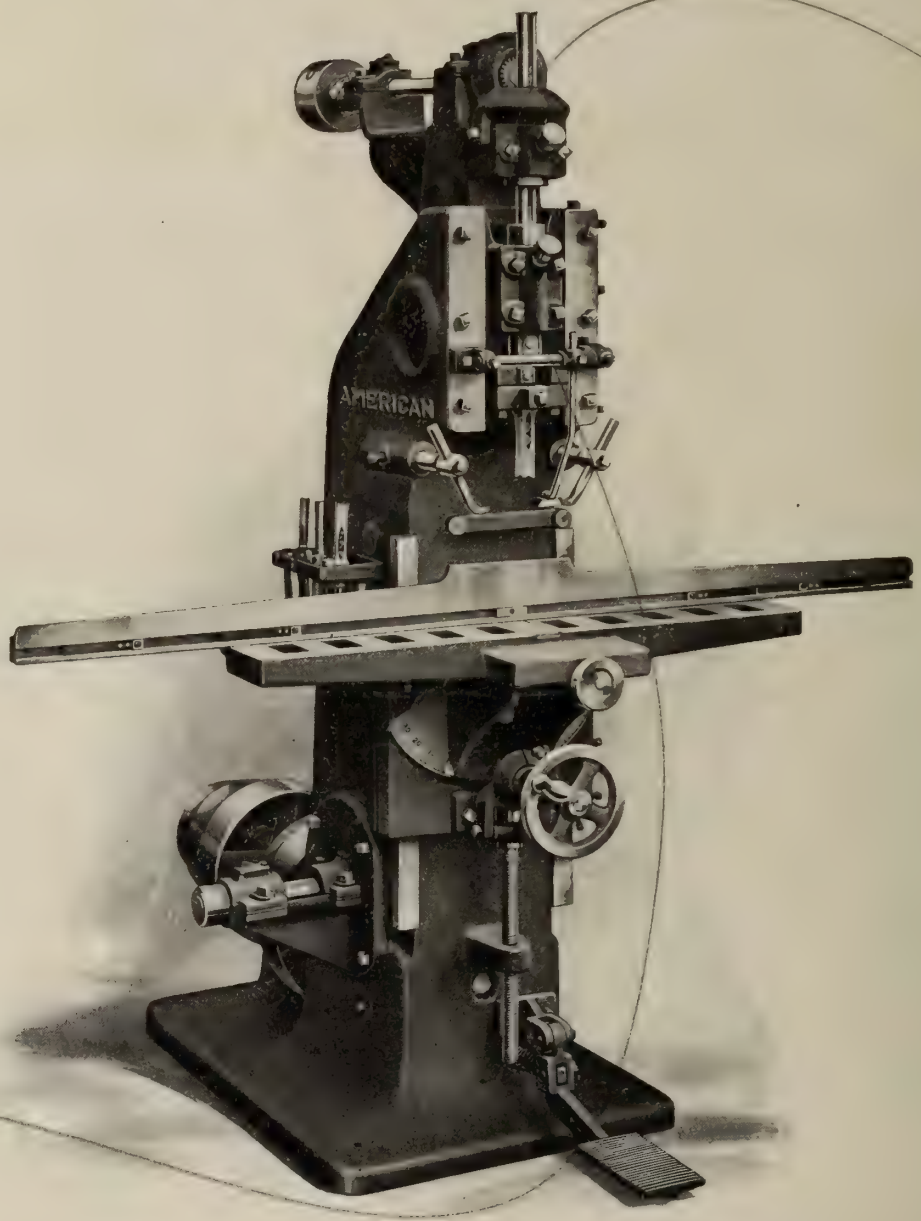


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Let us send you an illustrated circular of this machine. It's a brand new one.

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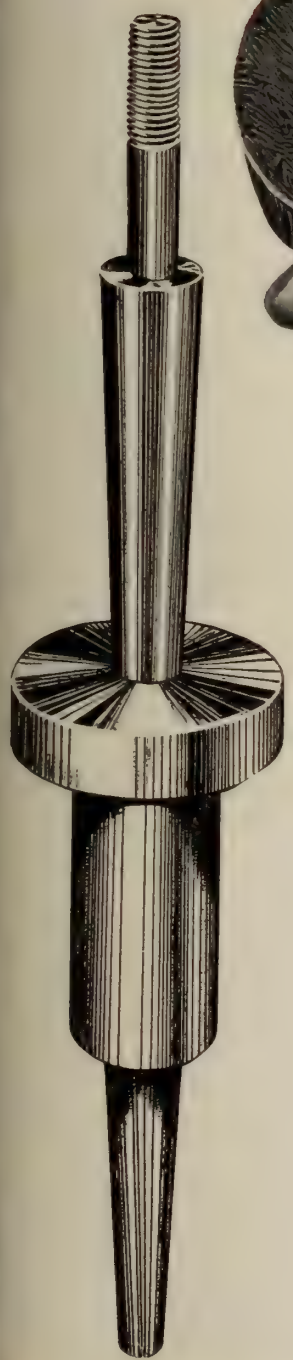
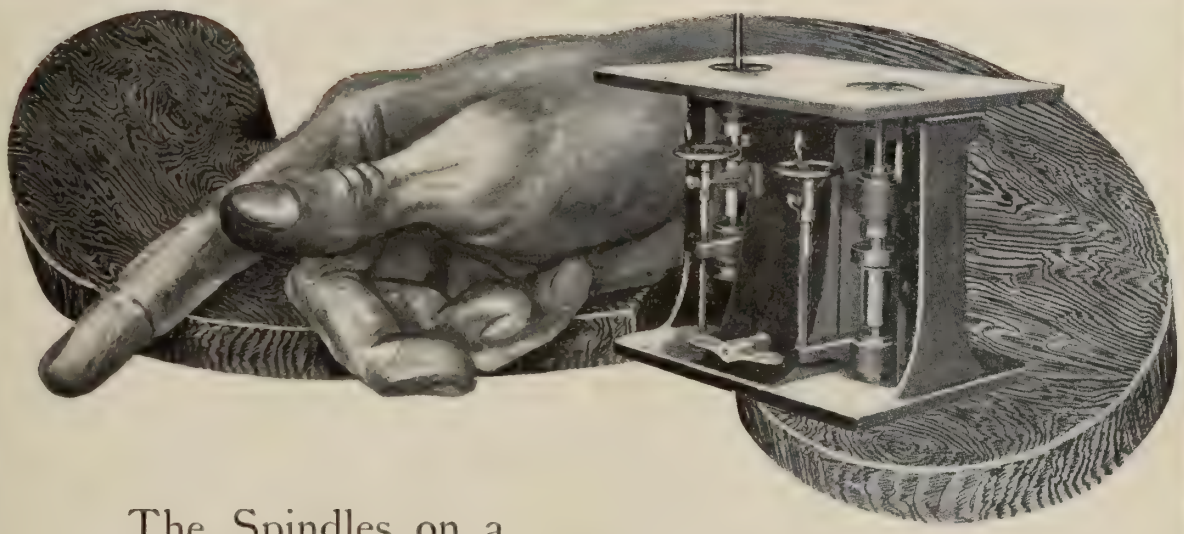
CANADIAN WOODWORKER

Toronto, October, 1912





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We watch closely the grade of each shipment of this tool steel—no steel ever goes into Whitney shaper spindles that has not first proved under test, up to the standard we demand.

These Whitney spindles are most carefully ground. They fit perfectly into oil-flooded conical boxes. In this way we obtain the mechanical precision which permits you to drive Whitney Shapers at the highest speed without vibration or overheating.

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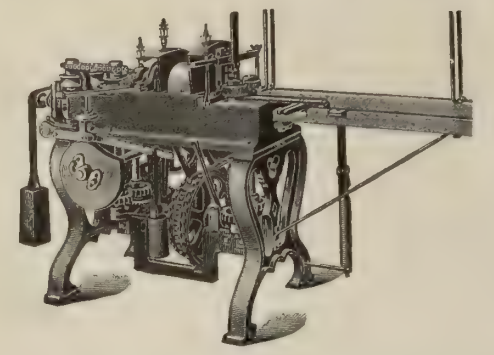

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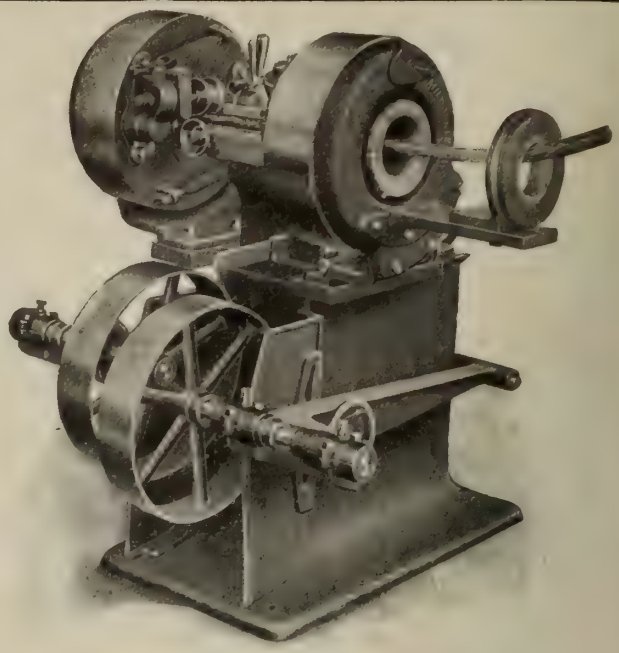

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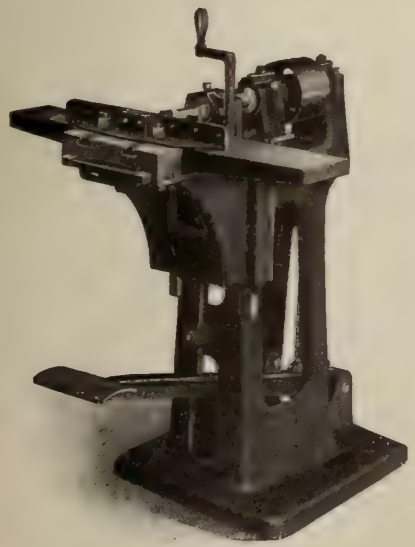

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Automatic disappearing stops eliminating the necessity of marking off stock for duplicate work. Mortises up to ¾ inch square and 3 inches deep, by reversing, 6 inches.

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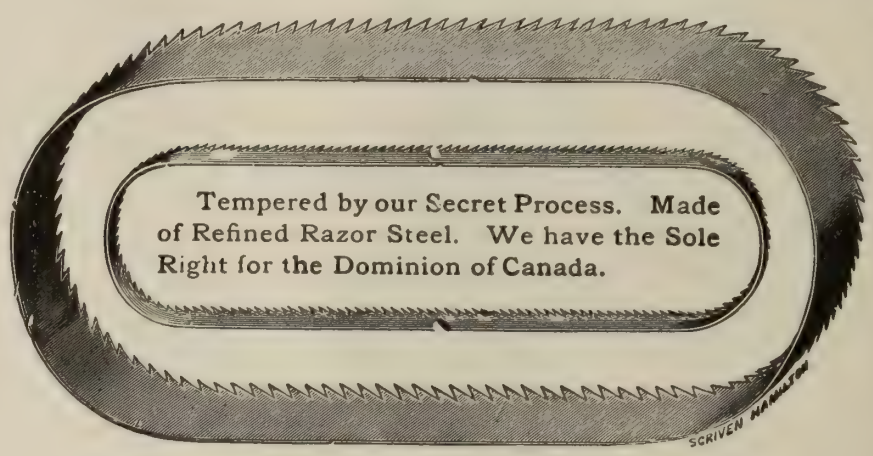


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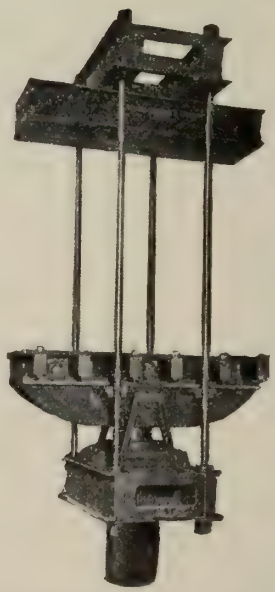

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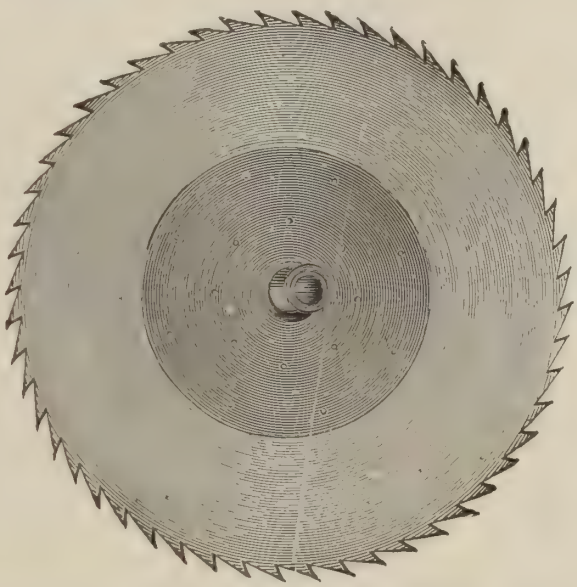

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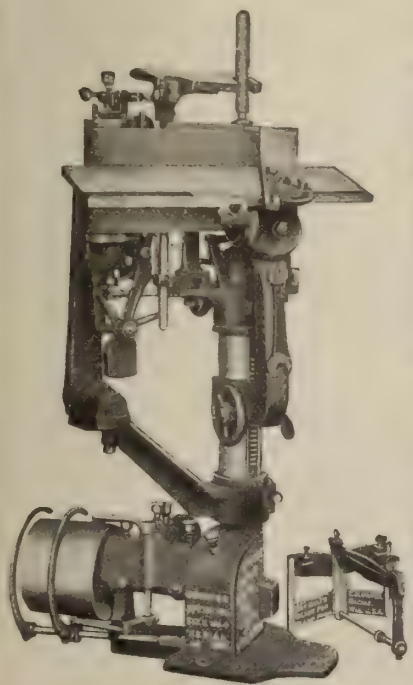

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We have had one of your machines in operation in our factory for about nine years, but presume that you have made changes and improvements since then and of course we want one of the latest improved.

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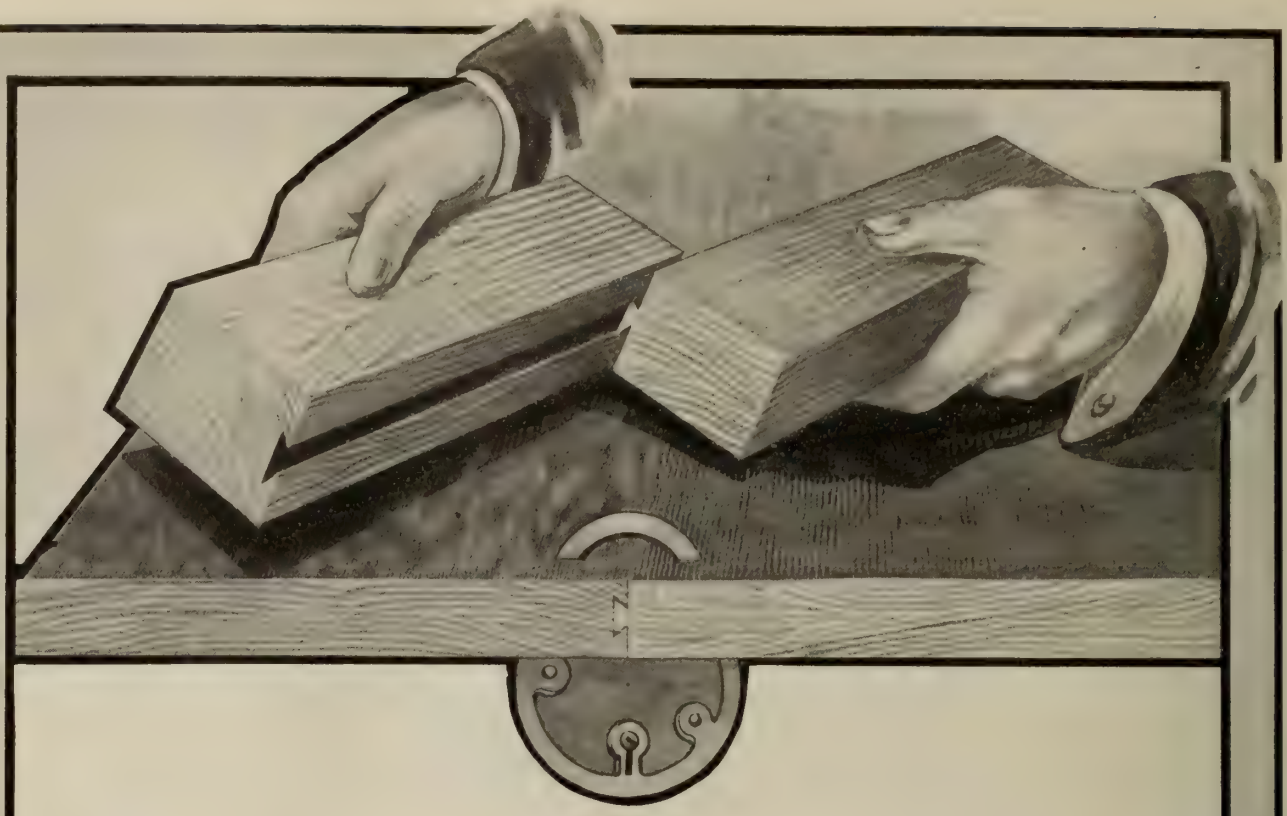

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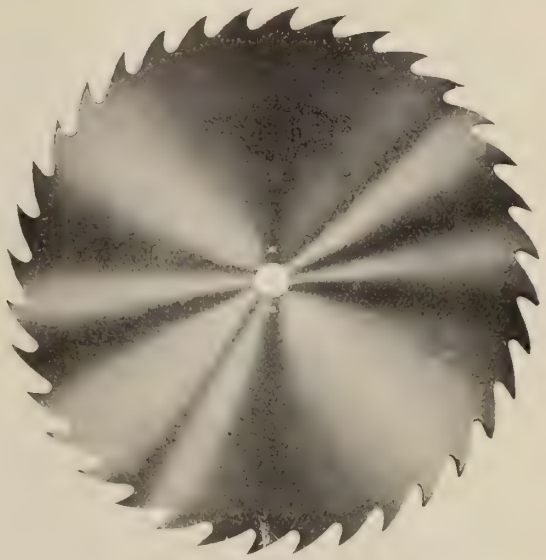

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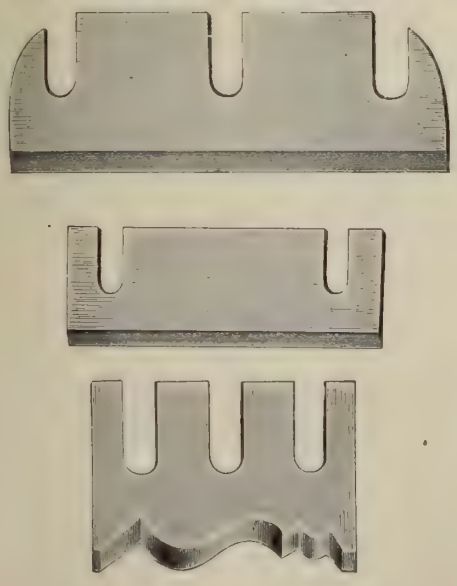

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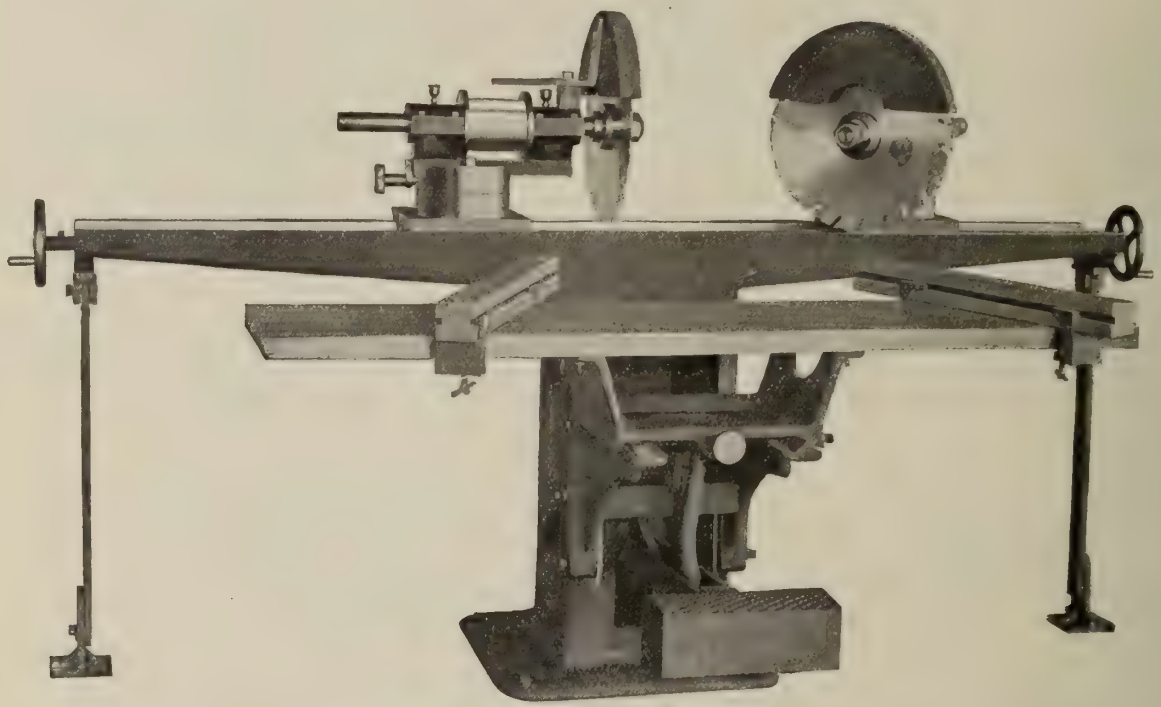

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ARTHUR W. DYAS, President and Managing Director
RICHARD PEARCE, Editor
Phone Main 5948
**15 Wellington St. E., Toronto, Canada**
United States: E. J. MACINTYRE, 4057 Perry St., Chicago.

SUBSCRIPTION RATE.

Canada, United States, $1.00; Great Britain, Australia 4s 6d.; other countries $1.50 per year. Advertising rates on request.

**Vol. 12 October, 1912 No. 4**


## Lumbering in British Columbia

British Columbia lumbering operations are in a measure commensurate with the gigantic trees which the loggers fell. There are mills on the Pacific Coast the size and capacity of which is astonishing. Conceive of sawmills capable of turning out 300,000 feet of lumber in ten hours. The little cross-roads industries familiar to most easterners are thrown in the shade by such huge undertakings. These are three mills—one at New Westminster, one at Vancouver, and one at Chemainus—which have a combined capacity for a ten-hour run approximating one million feet of lumber. Next to the three mills mentioned there are twenty mills with an approximate capacity of 150,000 apiece. These are large mills, and would be considered very big were they not surpassed by others.

The impression these two hundred and fifty voracious industries are making on the forest wealth of the province may be gauged from the annual cut. Eliminating the railway belt, which extends along the route of the Canadian Pacific Railway, and administered by the Dominion Government, the lumber cut for 1911, as registered by the provincial timber inspector, totalled 1,060,000,000 feet. Figures for the cut in the railway belt for 1911 are not available, but assuming that it would approximate the cut for the twelve months ending March 31, 1911, the result would be 28,000,000 feet of sawlogs, so that the grand total for the province would be 1,100,000,000 feet.

The output of lumber is increasing rapidly, as will be seen by examining the following figures:

| | |
|---|---|
| 1904 | 325,271,500 |
| 1905 | 473,713,900 |
| 1906 | 570,721,923 |
| 1907 | 846,000,000 |
| 1908 | 710,364,500 |
| 1909 | 829,000,000 |
| 1910 | 1,040,000,000 |
| 1911 | 1,100,000,000 |

Sixty-five per cent. of the lumber cut in the province comes from the mainland and Vancouver Island, being cut by forty mills in the vicinity of Vancouver. The timber is taken within a radius of two hundred miles from the city, principally from the north and east shores of the island, and from several inlets on the coast of the mainland. It is towed to the mills in large rafts. The remaining thirty-five per cent. of the cut comes from what is known as the mountain mills, which, while smaller, are more numerous.

The development of the industry is reflected by the building of new mills. One of these, that of the Ocean Falls Lumber Company at Cousin's Inlet, which is now ready to cut, has a capacity of 400,000 feet per day, exceeding any other in the province. Practically all the larger mills are the product of the last few years, which illustrates the growing attention that lumbering is receiving, while the opening of increased mileage in the province is bound to occasion enormous development.

Statisticians figure that there is now invested in the industry between $150,000,000 and $200,000,000 of capital, furnished principally by British, United States and Eastern Canadian investors. As the prices of lumber are advancing, and as stumpage values are lower than any other place in the whole of North America, opportunities for further investment of capital seem favorable.

In a sense the lumber industry in British Columbia, taking a long series of years, has not been profitable, though owners of timber and mills have, as a rule, become prosperous. For a long time the industry was in a depressed condition. The foreign trade in lumber has always been a limited one, and has not increased in proportion to local demand. Until the middle west had been fully opened up by settlement there was little else than the local demand to depend on, which occasionally induces over-production. On the whole, however, the industry has grown to large proportions, and of recent years has passed into stronger hands, while the almost phenomenal growth of local demand is a factor of importance. The general tendency to a decrease in the continual supply, together with an existing era of prosperity, has boomed the industry appreciably of recent years.

## Pulpwood Exports from Canada in 1911

### Pulpwood Exports from Canada in 1911

Pulpwood exported in the raw state during 1911 amounted to 847,939 cords, and 54 firms reporting to the forestry branch of the Department of the Interior used 672,288 cords, making a total cut of 1,520,227 cords, valued at $9,678,616. This is 21,401 cords less than was cut in 1910, but the quantity manufactured in Canada was larger, states Mr. H. R. MacMillan, B.S.A., M.T., in an interesting bulletin just issued. Over 95 per cent. of Canadian mills cut the pulpwood used by the mfrom their own limits and consequently ross the wood themselves. Altogether 73,801 cords of wood (i.e., 13 per cent.) more were used in 1911 than in 1910. The average price of the wood also increased, so that the value of the domestic pulpwood industry was greater in 1911 by $752,870, or 21 per cent. The average price per cord was $6.07 in 1908; $5.57 in 1909; $6 in 1910; and $6.45 in 1911. Only 22,229 tons more of pulp were produced in Canada in 1911 than in 1910. There was a decrease of 93 pounds in the amount of pulp produced per cord of wood; it is difficult, however, to secure trustworthy data as to the output of pulp, since many firms do not give the air-dry weight.

# Causes for the Discoloration of Wood

An esteemed Riga correspondent enters on a wide field of inquiry in connection with the seasoning of sawn red and white wood goods, a class of merchandise in the hands of the converter that is prone to discoloration before shipment.

He touches the spot when he fears that artificial treatment to preserve a portion of, say, a cargo of sawn goods from this evil would involve the treatment being extended to the whole; the same fear would also extend to the extra handling of the stock, an item in the cost of the production.

### Cost and Cure of Discoloration

If the discoloration can be averted without any additional cost there would clearly be a gain; if this cannot be achieved without incurring cost the question presents itself, Is not the remedy worse than the disease? for at the worst the "blue goods" in a dried state are saleable as "low grades."

There is nothing known about the influence of frost or low temperature in the seasoning of sawn goods by artificial means, and it is fair to assume, if placed in a refrigerator for twenty-four hours, that little progress would be made in the direction of drying for shipment; its effect could not be much different from that of a night or two's natural frost—the moisture in the wood might be congealed, but it would revert to the old order in the succeeding twenty-four hours of thaw.

The reverse is the case in the instance of sawn goods being exposed to natural frost for weeks and months, the drying qualities of which are well known. The wisest course is to look closely into the cause of this discoloration more with the vitw of minimizing than averting the evil.

First, we have the question of floated and unfloated logs. The former cannot be converted at Riga the same winter as they are felled, and some of the after evils may possibly creep in during the springtime when in passage or stored in water, or on land until wanted at the coast-line mills where, as our correspondent says, "a good deal of the sap has been washed out."

One other effect of this saturation is that the heartwood is softened or mellowed, for the secretionary matter natural to the tree, that marks or distinguishes it from the newer sapwood, is solvent in water, although in a less marked degree. We believe the question has yet to be asked, "does this saturation render the wood immune from discoloration in a later converted state?"

Our correspondent's experience seems to give a negative answer, for he says the produce of forest mills where they can convert the logs in the same winter as they are felled is mostly free from subsequent discoloration; his words are: " . . . the wood which is sawn in forest sawmills only a few months after the felling, but in the same winter, is in most cases free from discoloration."

Secondly, we have the question of unfloated wood, in which the sap is not washed out by saturation. This carries our minds back in the trade half a century or more, when we were familiar with the old orde rof hand-sawn deals and battens of forest produce, otherwise termed "peasant-sawn." They were innocent of water or floating, thoroughly dried before shipment, and the sapwood was, literally speaking, as clean and white as chalk. They were mostly 14 feet long and chopped on the edges.

In the unfloated state they are still represented in the great wood trade of the Btltic by sawn goods, white and speckled, with resin on the sap, with patches of bark affixed to the waney or wanting edges. They have no particular name in the trade, but are easily recognized and difficult to inject with creosote oil. We mention these goods in particular, as the floating of logs does not appear to be an antidote against discoloration in the later sawn goods.

In both instances the sapwood, as ligneous matter, is unquestionably alive to the call of nature, and vegetable ferment will generate in the cells when or where heat and moisture are present.

"The spring finds it not less alive to her sweet form" than the living tree with its new mantle of leaves. "Not there, my child," to use a hackneyed phrase, must we look for the solution of this discoloration question, but rather to climatic change or local environment, for it goes without saying that neglect or indifference on our part will lead newly converted stocks direct to ruin. Store them with a heavy touch, in a humid valley or district, or in confined surroundings, and blue goods, especially on the sapwood, will result.

### Stocks and Store Sheds

We could point to a merchant in hardwoods whose yards are partly on low and partly on high ground, who admits he could not dry his stock on the former, and erects his store sheds on the latter. Again, in the old wood duty days of England, when stocks were largely held in customs bond yards, closely walled in, it was impossible to keep the lower piles in the presence of slow-moving or stagnant air. When the duty was repealed the walls were pulled down and replaced with open fencing.

It is possible, in the instance of this question being raised at Riga, that the coast sawmills suffer from the humidity of the Gulf Stream, the warm sea drifting into the Baltic with the prevailing southwest winds, and that the more inland or forest mills are immune from its influence, and can dry their goods at a quicker rate with less discoloration of the stocks.

The remedy by which the evil can be minimized is, in our opinion, to store the goods open spaced, in open surroundings on high or open land wherever possible and find markets for the blue goods when thoroughly dried where color is not an object, say, where heavy or rough packing-cases are in demand for the transit or shipment of machinery, or creosoting is indulged in, a process that converts the sap portion into the most durable part of the wood.—Timber Trades Journal.

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### It Pays to Protect Workmen

Workmen's compensation acts, the energy of the press and the actual figures compiled by those who have studied the question, have practically proved that it pays to protect the wage earner.

Someone must support those dependent in the case of injuries. Cities and states have long performed this duty, but communities have decided to shift the burden to its employer as the man responsible for the conditions that cause the injury. The workmen's compensation acts which have recently been adopted

by ten states require in practically every instance that the employer furnish the funds.

There are a few far-sighted factory managements which have anticipated these laws. They have already equipped their factories with every possible device tnat will protect the workman and have installed compensation systems. In their investigations they have come to a rather surprising result: that it actually saves money to protect the workmen; accidents to operators in both large and small factories are a frequent occurrence and usually involve serious loss to the employee as well as the employer.

When an operator is hurt, he is ustally taken to the company's hospital where his injuries are taken care of. If they are not too serious, he is sent home until he is well enough to return to work. If the company does not maintain its own hospital, he is sent to one in the neighborhood where he is cared for in a similar manner. His pay goes on just the same while he is a non-producer. It must also be remembered that while an operator is ill, another one must take his place, so that the work that he formerly did costs twice as much during his illness as it did before.

The laws now in ten states compel the employer to take care of the injured workman and to pay him during disability. Formerly it was only a question of managerial viewpoint. Where there is no compensation act, is often happens that as soon as this injured operator is able to get about, a lawyer comes to see him and advises him by all means to bring suit against the company. This drags the company into the courts and usually the case is carried from one court to another until the expense to the company has amounted to many times the cost of both the machine which the operator was working at and a suitable protective device which might have been installed.

One large industrial corporation has found that the annual expense of defending law suits of this nature would pay for equipping the factory throughout with protective devices. In the light of these facts, this far-sighted company is devoting a great deal of energy to installing factory equipment provided with protective devices of almost every kind. Several men do nothing but design protective apparatus.

### Uncle Sam is Trying to Raise Redwoods

The Forest Service has undertaken a big contract in starting to raise a grove of redwood in the Tahoe National Forest, in California. The planting site is about 34 miles northwest of the most northern existing grove of redwood. It is on a moist flat not far from Nevada City, about 27,000 feet above sea level. The first seeding was done in the fall of 1910 with successful results, and last fall an additional area was seeded.

The flourishing condition of the young seedlings gives reason to anticipate a future growth of big trees at this point. With the protection of the forests from fire there seems to be no reason why the big trees should disappear, even though scientists regard them as survivors of the past age, botanically speaking. Even with the success of the seed planting assured, the trees that have been cut can never be reproduced, as they were in some instances four or five thousand years old.

### Manufacturers Must Support Night Schools And Reduce the Hours of Apprentices

"If the co-operative and night schools are to be a success the manufacturer must play an important part in their establishment and management," says the Hon. Dr. Pyne, in a statement issued recently, showing what the government is doing under the Industrial Education Act, passed at the last session of the legislature. "The experience of the last year has shown that, for the education of the ordinary workman and workwoman, we must look chiefly to the general industrial school, the co-operative school and the night school. For the apprentice who is to atte nd such classes, the employer must reduce the number of daily work hours, or he must allow him off for attendance at school six or seven hours a week. It is not reasonable to expect the apprentice to work at his trade eight to ten hours a day and attend night classes as well. The manufacturer himself holds the key to the solution of the problem. Neither parents, nor school boards, nor the Department of Education can solve it alone."

"Since the passing of the Industrial Education Act, as much progress has been made as can reasonably be expected; but, until the Dominion Government announces whether it will give a grant to the province in aid of industrial and technical education, as it has done in the case of education, it is not practicable for the Ontario Government to complete a comprehensive scheme of day and night industrial and technical education."

### A Factory Manager's Theory of Success

The same ideas come to all men—it is only in the use we make of these ideas that we differ. The most successful men are those who make the promptest use of the ideas that do come to them. They are the men of action—the men who lead and dominate."

Thus the manager of a big and busy enterprise expressed his theory of success.

"I apply this principle in the conduct of my own establishment," he continued, "and it produces wonderful results.

"Whenever I make a round of the plant I carry with me a small duplicating communication pad. As I note a thing that is wrong, or hear a complaint that strikes me as just, or see a chance for improvement, instead of making a memorandum of it in a note book haphazard or merely making a mental note of it, which usually means side-tracking the idea altogether, I write it down at once on my pad, address it to the proper authority or to myself, tear it off and drop it in the nearest factory mail box. It is then off my mind and put into the regular channel for action.

"The duplicate enables me to follow up all communications. These are kept on a special file on my desk and remain there until the matters are disposed of. Communications to myself by myself are also attended to in regular order. I have a little plan board on my desk, containing three clips. The topmost is for fresh communications, the middle one for pendings and the bottom one for immediates. It is wonderful the amount of detail I am thus enabled to carry and attend to."

### Workshop Notes

How to Make an Old File Cut Like New.—When a file has seen its best days and refuses to cut, try this little kink: Take a piece of charcoal and rub on the file, just one or two strokes, and then try your file. You will find that it cuts much better, and will not clog with filings.—H. D. C. in Scientific American.

# Look After the Heating System

Just as the forehanded householder lays in coal, wood and other fuel during the summer months against the winter needs, so does the wise mill man or manufacturer overhaul and put in order his factory heating system before cold weather.

The ideal time to do this is right after the turn of summer. At least then is the time to start at it so that there will be plenty of time for deliberation, laying plans, getting material and making the installation complete. If it is put off until the last minute there is likely to be a great rush and hurry, the installation will be indifferently made, and the satisfaction secured from it not what it should be. Not only that, but when the weather is cold and disagreeable is a mighty poor time to do work of this kind, work that properly calls for painstaking detail and deliberation all the way through.

So get at it early. Take the matter up right away. Make up your mind by investigation what heating system might best be applied to your plant, or, if you have one, what alterations or repairs will be necessary, then get at it.

The people who make a specialty of house heating are now turning out a number of different systems. Some of these are worthy of investigation by owners of factories, because the same principle can be applied on a larger scale, and one can develop a factory heating system entirely independent of its power plant and boiler room. Put it in a separate place, if need be, and keep the factory warm, either night and day, or just during the daytime, if you prefer it. Use scrap stock or coal for fuel, and be comfortable.

To be comfortable is important, and every up-to-date mill owner is recognizing this now. Moreover, just as the modern home-builder is making it a point to install some heating system that will keep his house comfortable al over, instead of following the old-fashioned way of having a stove or fireplace in two or three different rooms, so is the factory owner finding it worth while to make his factory comfortable during the winter months, from basement to attic.

This subject is brought up now because now is the time to give it consideration, to lay plans, investigate the offerings, then get to work and have the equipment installed and completed before cold weather comes.

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## SLEPT IN COFFIN

### Unique Experience of Bobcaygeon Man at Lake of the Woods

In April last Mr. George Read, grandson of Mr. J. L. Read, who is foreman in charge of works for the Rat Portage Lumber Company, came to Bobcaygeon, and took back with him a party of seven men to run a drive of logs. The party consisted of John Flannigan, John Gallagher, Melville Northey, Albert Hill, Wilbert McIlmoyle, Wm. Junkin, Jos. Thibadeau, and left here on April 13th. Through missing a telegram to them on the train they went through to Kenora, when it would have been easier for them to have reached their destination from Fort Francis; on the Canadian Northern. They reached Kenora, originally called Rat Portage, at the foot of the Lake of the Woods, for the Rainy River and Lake of the Woods flows to the northwest, on Wednesday. They immediately changed their clothes and joined the walking boss and another party of eight. Word had been received a few days before that the two teams left at the camp to go to Capston work with the drive had gone through the ice and been drowned. The ice was in a bad condition but there was nothing for it but a walk of a hundred miles.

The walking boss, however, knew the road, and took the lead, scrambling out on the ice with poles as it was broken from the shores. At the head of the Lake of the Woods they spent a night at the camp of the mining company that was closed down, where the caretaker, an old Norwegian, had a couple of pigs he was feeding. A party of sixteen hungry men was quite a task on his resources, but he sat up all night and had a good breakfast ready for them in the morning. He gave his own bed to Flannigan, and it was a unique one. It was the old man's coffin, and the lid stood upright at the head against the wall. Flanagan was tired and the bed was as comfortable as any high-toned brass affair.

The day they reached their camp they passed near the little lake where the teams went through and saw the drowned horses. At that time the walking boss dropped through the ice, and when he got to shore and made their way through the woods.

They had eleven million feet of good pine logs in two blocks. Geo. Read and his Bobsaygeon men had one, the walking boss and his eight men the other. Head winds prevailed most of the season and made the run very tedious. They left the logs at Northwest Bay, Rainy Lake, and tugs would take it to Fort Francis, twenty miles away, where it will be laid till spring. They had a run of eighty miles down the Rainy River with a gasoline launch and a small scow carrying their team and equipments. At Fort Francis the whole outfit had to be drawn over the portage. A canal and lock is in construction, and will be ready for next year.

The run from the Fort through Lake of Woods to Kenora, about a hundred miles, was made on one of the large steamers of the company, which took the launch and scow in tow. In some parts of the lake they were out of sight of land, and though it was a calm day the swell was heavy enough to give trouble to the scow. The whole party returned home last week in good health, having been away five months.—Exchange.

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### Using the Pay Envelope to Create More Spirit

A Wisconsin mill utilizes its pay envelopes not to speak of the contents, to create a good spirit and interest in the work on the part of its employees. On the revense side of each envelope is printed some such message as:

"It's only by cutting down expenses, saving what might be wasted, giving customers service as well as material, that the firm can become more prosperous. Your success depends upon the success of the firm."

Reaching the employee at the opportune moment, when he is counting the cash results of the week's work, this appeal sets many of them to thinking along right lines. The wording is changed each week, and the printing costs little compared with the inspirational value of the little talk.

# The Adaptability of Cypress and the Use of California Redwood.

### Answers to Correspondents

A Woodstock, N.B., subscriber wishes to know the uses to which Cypress can be put. As this makes the sixth inquiry we have had recently relating to this wood, we are reprinting an article which appeared in the December, 1911, issue of the Canadian Woodworker. We are also printing the views on the same subject issued in the Bulletin of the United States Forest Service.

It is interesting to note that our views on cypress published almost a year ago are also the views of the forest experts, which have only recently appeared in print.

### Cypress Coming Into Favor for House Trim

It is well known that cypress has been used for a great number of years in the manufacture of water tanks, distillery tanks, fermenting and creamery tanks; also churns. It is a wood that does not leave any taste or discoloration to the contents ,and naturally finds favor for purposes mentioned. But its use in the planing mill is not so general as one would suppose. Still in some localities it is beginning to take the place of white pine for porch columns, balusters, railings, stair work and interior finish, etc. Practical proof of its efficiency for sash and door is furnished by the fact that a large number of men are substituting cypress for white pine. And builders like it.

Talking to a mill man the other day he explained that he could buy cypress at about $32 per M. and use every inch of it. This man's first experience with cypress was when he bought a car of 1½ for making sash and doors. It cost him $32 per M. He found that the percentage of waste in cutting up small in comparison with white pine at $48 per M. This led him to buy a car of one inch for interior trim, this apparently proving satisfactory. He commenced using it for other purposes. Cypress is a wood that looks well when finished in the natural, or if color effects are desired these can be secured by the application of suitable stains; and a good finisher will do wonders and secure the most pleasant effect.

I think the mill man should be informed as to how cypress is to be finished in order to furnish door and panel work suitable for the finish specified. I was talking to a builder the other day about cypress trim who expressed a preference for the dark and light shades mixed. He likes to see the door panels dark and the stiles and rails light. I think few share his taste. Indeed, some builders refuse to accept dark cypress for the first and second floors. Other builders are not so particular and will take stock just as it comes from the mill—light and dark shades, small and large figure is all the same to them. They trust to the carpenter to use good sound judgment in selecting the material for each room so that there will not be any striking contrast such as would appear if one dark and one light casing was put on a door or window frame.

It is careful attention to these details, together with the continually increasing cost of pine that is making the demand for cypress doors, dado work and interior trim so great; and it is safe to predict that next year more mill men will make use of this lumber.

### Cypress and Redwood for Interior Fnish of Houses

In discussing the use of cypress for exterior and interior finish in connection with building construction, Bulletin 95, recently issued by the Forest Service, offers the following comment:

Cypress is put to almost every use as an interior trim for houses. It may be finished in natural color or stained. The wood contains little resin, and thus affords a good surface for paint, which it holds well. It is much used for door frames, window frames, transoms, ceiling, wainscoting, panels, doors, sash, balusters, inside blinds, brackets, newel posts, grilles, mantels and to some extent for flooring. It is a popular wood for kitchens, where it is subjected to dampness and heat. It shrinks, swells or warps but little, and is used for drainboards, sinks, kitchen and pantry tables, cupboards, and kitchen cabinets. For the same reason it is used for breadboards and wooden implements about the pantry, ironing boards, and clothes driers.

For the parts of houses exposed to the weather it serves equally well. As siding it practically wears out before it decays. When made into porch and portico columns it retains its shape, holds paint, and has sufficient strength to sustain necessary loads. It is placed as cornice, gutters, outside blinds, pilasters and railing, and is much used for porch floors and steps.

In regard to the use of California redwood for interior finish the same authority states that it meets almost every use and requirement. Floors and ceilings are made of it, and wainscoting, panels, moldings, chair boards, brackets, shelves, railing, stair work, spindles, balustrades and mantels. Formerly such work was often painted, and the grain of the wood was concealed, but the practice is now less common since the natural beauty of the wood is better appreciated. Its colors are rich and varied, and the finisher who understands the art of bringing out their best qualities can please almost any taste. It is a beautiful wood for carving, and is often so employed. The wood of all redwood trees is not of the same color, nor are different parts of the same tree alike. The soil and situation where the tree grows have much to do with it. Shades range from light cherry to deep mahogany. Where the soil is light the wood resembles Spanish cedar. Some grains are so straight that boards may be split 2 in. thick, 12 in. wide and 10 or 12 in. long. There are buildings in the redwood districts constructed of split boards and so evenly is the splitting sometimes done that a rather close examination is necessary to discover that the lumber is not the product of a sawmill. Miles of roads through the redwoods are corduroyed with split planks of this wood.

In other cases the texture is so complicated and involved that all semblance to orderly wood is lost. Such wide extremes in grain and color give the carpenter and finisher their opportunity to make combinations to harmonize with nearly any kind of surroundings. Perfect boards of such width and length may be had that panels, shelves and counter tops of nearly any desired size may be made from a single piece. A panel of that kind has an added value because the wood warps practically not at all, shrinks little and disfiguration from swelling need not be feared. If it is deemed desirable to darken the natural color of the wood, it can be done with oils. By well-known

methods of treatment imitation of rosewood and mahogany may be produced.

The making of redwood doors has an important business. They are handsome, light, strong, and hold their shape will under changes of climate. Swelling and shrinkage, which give much trouble with doors of various other woods, are reduced to a minimum with redwood.

### Equipment of Woodworking Plants

In a recent article it was pointed out that in cheaply constructed wooden buildings devoted to woodworking purposes, the insurance premiums are likely to run as high as 8 per cent. In a building of the best fireproof constructed and fitted with automatic sprinklers, the premium is about 3/4 of 1 per cent. The difference, as shown by figures in the article quoted, would pay for the difference in the cost in about four years. This is shown by an analysis of the following table:

| | Wooden Building | Fireproof Building |
|---|---|---|
| Cost of building | $ 6,000 | $10,000 |
| Woodworking machines | 5,000 | 5,000 |
| Automatic Sprinkler System | .... | 2,500 |
| Power plant and other Machinery | 7,800 | 7,800 |
| Stock, lumber and unfinished work | 10,000 | 10,000 |
| Total investment liable to loss by fire | 28,000 | $35,300 |
| Insurance premium | 2,304 | 264. |

The difference between insurance premiums is $2040. If we figure an interest charge of 6 per cent. on $6500, difference in cost of plant, this amounts to $390 a year. The net saving of the fireproof and sprinklered equipment as compared with the other is $1650 a year, which pays off the entire difference in cost in less than four years. An incidental saving not shown in the figures is that from depreciation and repairs. The cheaply constructed wooden building would deterioriate very rapidly, making a high maintenance cost and a high depreciation. The building of fireproof construction would be found probably to require not over one-third the repair cost while the depreciation would be at a still lower rate. Everything considered, it is a case of "penny wise and pound foolish" to put up and attempt to operate the cheaply constructed wooden factory.

### Opportunities for Foreign Trade

The following enquiries have been received from England and other countries relating to Canadian trade. The names of the firms and their addresses can be secured by interested parties by writing to the Enquiries Department, Canadian Woodworker.

Any of our readers who are answering the enquiries should not fail to forward references—particularly if bankers references.

159. **Furniture.**—A large firm of importers would like to have the c.i.f. prices Buenor Ayres, of furniture of all kinds. All useful information should be included.

166. **Bungs.**—A Manchester firm with a very large connection throughout the timber trade in the United Kingdom, requests to be placed in communication with manufacturers (only) of wood bungs in the following sizes: 5/8-inch, 2-inch, 3/4-inch, 7/8-inch, 1-inch, 1 1/8-inch, 1 1/4-inch, 1 3/8-inch, 1 1/2-inch, 1 5/8-inch, 1 3/4-inch, 1 7/8-inch, 2-inch, 2 1/8-inch, 2 1/4-inch, 2 3/8-inch, 2 5/8-inch, 2 3/4-inch, 2 7/8-inch and 3-inch diameter.

The thickness of the bungs to be proportionate to the respective diameters.

To be quoted for in oak, beech, basswood, birch.

167. **Closet seats.**—A firm of importers in Buenos Ayres would like c.i.f. prices and catalogues, &c., of closet seats, with and without lids of the self-acting kind. All information which might be useful should be added.

168. **Spiles.**—A Manchester firm asks for samples and prices of spiles, one-half inch diameter, from Canadian manufacturers.

169. **Mangle roller blocks.**—A Manchester firm asks quotations from Canadian manufacturers of maple mangle roller blocks in the following sizes: 26 in. long x 6 1/2 in. diameter; 26 in. long x 5 3/4 in. diameter; 22 in. long x 6 1/2 in. diameter; 22 in. long x 5 3/4 in. diameter; together with a small percentage of some falling smaller sizes. Blocks to be from hard rock maple, sound, free from knots, shakes, splints, well and evenly manufactured. Ends painted or tarred, and can be shipped in the green state. All shipments to arrive here during the usual shipping season of January to May. All prices to be c.i.f. Liverpool and Manchester.

176. **Furniture.**—A west of England firm who have already done business with Canada, desires to correspond with Canadian importers of high-class English furniture.

177. **Birch, beech and maple squares.**—A firm in East Anglia wishes to get in touch with Canadian firms who can contract for regular supplies of prime quality birch squares or scantlings, to specification. They also desire quotations for beech and maple squares.

178. **Broom handles, rake fork, shovel pick and hammer shafts.**—A correspondent in Glasgow would like to get into touch with manufacturers and shippers of the above articles for sale in Scotland, England and Ireland. Commission or buying agency.

### August Sprinkler Fires

In the report of fires occurring in August, the Boston Manufacturers Mutual Fire Insurance Co. gives figures for 59 cases where Grinnell Automatic Sprinklers were installed and 15 cases where they were not. The 59 fires involved a total loss of $17,249, an average of $292 per fire. The 15 fires, where there were no Grinnells, involved a loss of $15,965, or an average of $1,064 per fire.

This contract is very much the same as is shown by the reports month after month, and shows how it is that insurance companies are able to make such large reductions in their rates where properties are protected adequately by automatic sprinklers.

### Barrel and Box Stock in England

The class of material used in the United Kingdom for Portland cement barrel stock is fir, which comes chiefly from the Baltic region. The sizes for staves are 1/2 inch thick by 3, 3 1/2 and 4 inches wide, and 26, 27 and 28 inches long. The grade is good No. 2 common, but the stock must be free from large and unsound knots; small knots if sound are not considered a defect. The price for this stock is $40 per St. Petersburg standard of 165 cubic feet, or about $20 per thousand feet delivered f.o.b. London. The raw ma-

terial from which the stave and heading stock is made is chiefly trimmings; and the stock is considered a by-product of the mills furnishing it, only a minimum charge being made for the slabs, &c., going into it.

The Associated Portland Cement Manufacturers, Ltd., produce about 90 per cent. of the cement manufactured in the United Kingdom—about 3,000,000 barrels annually. These people are experiencing difficulty in securing the quality and quantity of stave and heading stock they require, and in time prices may advance sufficiently to make this trade of interest to manufacturers.

The packing box used in this country generally is built of fir, with the exception that the ends are of a low grade of hardwood, such as elm. The fir is of a grade called firewood and is a nondescript lot of stuff. All thickness from ½ to 3 and 4 inches, and all widths and lengths are sold, at prices ranging from $12.50 to $27 per thousand feet, delivered in London. Box shooks and cut-up lumber are made chiefly from this class of material, and while a great deal of labor enters into their manufacture packing boxes of all description are very cheap as compared with prevailing prices in the

### Production of Automobiles in United States

Thirty million dollars' worth of American automobiles found markets abroad in the fiscal year 1912, against less than $1,000,000 worth 10 years ago. Figures just completed by the Division of Statistics of the Bureau of Foreign and Domestic Commerce show that the exports of automobiles to foreign countries in 1912 were valued at $21,500,000, and of parts thereof, including tires, $6,750,000. If to this are added the shipments to Hawaii and Porto Rico, we get for the year's sales of American automobiles outside of continental United States a round $30,000,000, since the value of automobiles and parts sent to Porto Rico was nearly $1,000,000 and to the Hawaiian Islands a little over that amount. The total number of machines exported to foreign countries was 21,757, valued at $21,550,139, averaging slightly less than $1,000 each, while the values of those to the non-contiguous American territory was higher, averaging $1,600 each.

The export price of American automobiles in 1912 averaged less than in any previous year in the history of the export trade. The average for 1912 was $990, against $1,100 in 1911, $1,380 in 1910, $1,700 in 1909, and $1,880 in 1908. Automobiles imported last year amounted to about $2,000,000 in value, against more than $4,000,000 in 1907. The average import value of the automobiles brought into this country last year was $2,216, against $2,138 in 1911, $1,936 in 1910, $1,78 in 1909, and $2,392 in 1908.

Even the remarkable growth in the exports of American automobiles has not kept pace with the growth in production at home, since the census of 1900 showed the value of motor cars manufactured in the United States in 1899 at $4,748,000, while that of 1910 showed $249,202,000 as the value manufactured in 1909. The wages paid in the automobile industry, as shown by the census report, aggregated $1,321,100 in 1899 and $48,694,000 in 1909; the capital employed in the industry in 1899, $5,769,000, and in 1909, $173,837,000; and the number of wage earners employed in 1899, 2,241, and in 1909, 75,721.

English-speaking people are the chief purchasers of American automobiles. Of the 21,757 exported in 1912, 6,288 went to Canada, 5,716 to the United Kingdom, and 3,625 to Australia and New Zealand. The next largest number, 1,611 was credited to South America, while European countries other than the United Kinkdom took 2,296.

Of the 963 automobiles imported into the United States in the fiscal year 1912, 401 were from France, 188 from the United Kingdom, 131 from Italy, 116 from Germany, and 127 from all other countries.—(U.S. Consular Reports).

### Recent Inventions

Wheel Rim Jointing Machine.—G. A. Ensign, care of Defiance Mach. Works, Defiance, Ohio. The invention provides a machine designed for jointing or truing one side of the wheel rim stock to render the said side true with the inner surface to the stock so that any inequalities due to bending or shrinkage are compensated for and the stock is provided with a true working surface to permit of subsequently feeding the stock correctly through a planer to insure the perfect formation of perfect wheel rims.

Tension Device for Band Saws.—G. A. Ensign, care of assignor to Defiance Mach. Wks., Defiance, Ohio. The object here is to provide a new and improved tension device for band-saws arranged to maintain a uniform tension on the saw blade to permit light or heavy sawing of hard or soft wood without danger of breaking the saw blade or running the same off the wheels.

### Canada Has 798,000,000 Acres of Forest Land

According to an article by Dr. Clerget in the Journal of the Paris Geological Society, there are about 3,751,000,000 acres of forests on the face of the earth. In other words, about one-fourth the total land surface of the globe is wooded. Of the various nations, Canada stands foremost as to total forested area, containing about 798,000,000 acres of forest. This represents a greater acreage than is possessed in wooded land by all of Europe, and in fact covers about one-third of the area of Canada. In Europe and Asia three-fourths of the forested area lies in Russia and Scandinavia. Findland contains the greatest acreage of wood lands, one-half of its area being covered with trees. Of the great area of the Russian Empire, 518,900,000 acres are wooded. After Russia follows Scandinavia with a wooded acreage of 49,400,000 and then Germany with approximately 35,000,000 acres. Austria and Hungary together have a total wood acreage of 39,500,000 acres, while France has but 2,410,000 acres. Spain and Italy have practically destroyed their forests, much to their permanent injury. India has the vast area of 123,500,000 acres under forest cover, while in the comparatively small area of the Japanese Empire, 56,830,000 acres are wooded.

### A "Handle" for the Desk-Blotter

The man who has many occasions to use a blotter in the course of a day will find that much time and annoyance may be saved in picking up the blotter if he will simply bend up the edge that lies toward him. The bent-up portion affords a place under which the thumb may be placed and the blotter is easily lifted without even raising the eyes from the writing. It's hard to pick up a flat blotter from a flat surface, but this "handle" makes it easy. A convenient blotter is particularly desirable when one has a great number of letters to sign, as well as in other work of like character.

# Woodworking Machinery and Practice

### The Equipment of the Filing Room

Unless one has been in the filing business, or closely affiliated with it, he cannot possibly realize what a change has taken place in the past few years in the methods employed and the tools and machines that have been invented and put on the market to keep saws and cutters in condition to meet the requirements of progress in the lumber industry.

The filer of twenty years ago had to employ a skill that was embryonic in its very nature, and the conditions and requirements of those days demanded originality as well as effectiveness; and with the few tools he had to do with, it seems to me that the results obtained were, to say the least, remarkable. The filers of that period are well deserving of sincerest regard for at least one thing, and that is the expert knowledge their work disclosed while laboring under a decided handicap, compared with the conditions as they are found to-day. Many very commendable workmen are even now found wrestling with the saw problems, that are making slow progress in trying to place the old-time board saw in a shady place in the background and maintain a prestige that will prevent all from taking a look backward occasionally, or some from allowing their thought to revert often to what old Mr. So-and-so used to do with his saws when he was in the business.

The filing room has very aptly been termed the heart of the plant. It is necessarily a centre around which revolves much that is of vital importance to the efficitncy of the plant in which it is located. If poorly equipped, poorly lighted, heated and ventilated, its value to the place is problematical and perhaps questionable. Usually the class of factory or mill operators who think such a filing room is as good as they can afford, will think that a low-priced, unskilled workman is as much as they want to pay for, to look after it. In reality, a first-class workman's skill would in a measure, offset some of that which is lacking in the equipment and passable results be obtained.

When there is much that is wrong in the filing room, there is something wrong in every corner of the factory. If the saws and cutters are not properly fitted, the men using them cannot turn off the work in quality or quantity commendable to themselves, no matter how skilled they may be, consequently their work cannot come up to a point of efficiency that might otherwise be attained.

On the other hand, anyone who has in any way noted how beneficial good conditions are, as regarding results, where skilled labor is employed, or how detrimental bad conditions are to the results where either skilled or unskilled labor is employed, does not have to expand his imagination very much to realize to a great extent many of the benefits derived from a well-lighted and well-equipped filing room, with a competent man in it to look after and do the work.

Not farther back than most of us can remember, a file and a vise—the latter made of two boards, with a hinge at the bottom and a bolt through them at the top, with a thumbnut on it—an upset swage or swage-bar, one or two small hammers, a piece of steel with a slot near the middle of it, for bending the teeth sidewise for spring set, and a side gauge, constituted an outfit suitable for fitting the saws in a mill or manufacturing plant where a considerable amount of business was being done. The whole outfit could be purchased for about $15 or $20, or possibly less.

The filer was not expected to know very much about tension, levelling or repairing the saws, as the work or accidents caused them to become more or less useless. He did nothing to them except sharpen them as they needed it, consequently they were allowed to run down until out of commission altogether. Then it was a matter of a fairly-good saw being either consigned to the scrapheap or sent back to the factory to be repaired, at a cost closely equaling the price of a new saw.

To-day it is quite different. The appliances we find installed in a modern filing room where band and circular saws are being cared for, embrace at least one, and sometimes more, of each of the following: Automatic sharpeners for bands and circulars, saw-stretcher, two hammers (doghead and cross-face), steel-faced anvil, leveling block (cast iron, planed two sides), straightedge, tension gauge, back gauge, shear and retoother, lap cutter, forge and brazing clamps, machine swage, upset swage of suitable size for occasional use, swage shaper, and many little incidentals like files, emery wheel dressers, etc., too numerous to mention.

By comparing the two equipments as enumerated, one familiar with things mechanical, and their uses, can easily estimate the possibilities in results that can be reasonably expected of either, with an equally competent man in charge of each. He cas also understand, in a measure, the change the occupation has undergone within the remembrance of some of us who do not consider ourselves very advanced in years.

And in these days, besides being able to keep the saws sharpened and in good conditions as regarding tension and general repair, it is required of the filer to be able to cut over and refit saws worn too narrow or too small for the original machine, to fit a machine requiring a narrower or smaller saw, as the case may be, which can only be done in a filing room fully equipped with modern appliances and in charge of a skilled mechanic, who is willing to exert his mind, use his faculties, and is not afraid of hard work nor to tackle complex problems.—Ben Lowery.

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### The Automatic Feeding Table

The fast-feed planer and all the changes made necessary by its advent, are with us to stay. This is very evident. One of the new conditions is to keep a 200-ft.-feed machine filled with stock, so that its production may be all it should. The automatic feeding table made by the S. A. Woods Machine Company, Boston, Mass., seems to solve this problem quite satisfactorily.

The table for softwood planers consists of a wooden frame mounted by four spiral rolls, which, in revolving, draw the stock toward the guide side, where it is then handled by a pineapple spiral roll on the top, and fed into the planer. The feed pressure for the latter roll is secured through a lever crossing it at an angle on the top, which is mounted by a weight. The table is driven by a pulley applied opposite the feeding-in rolls of the planer. In feeding, the feeder drops the board on four projecting angle irons, and from these it slides to the top of the table, where it comes in contact with the spiral rolls mentioned

above, and its procedure from this point is obvious.

The value of such a device as this is not realized unless you consider the loss of power, labor and production due to the inability of the ordinary feeder to keep high-speeded machines filled. A modern matcher has triple the capacity of an old-style machine, consequently one hour's loss to-day is equivalent to three hours' lost time a few years ago. On fast-feed planers fed by hand there are some manufacturing defects that cannot be eliminated entirely, and in consequence prevents the owner from securing from his machine all it is capable of giving. There is more or less clipping of ends and burning of stock, which is not due to any fault of the machine, but is caused by the feeder's inability to keep the boards butted. Then, again, there is put through a machine of this character in a day a certain percentage of stock that must be degraded, which would have been prevented if the feeder had time to place them in the machine the most advantageous way.

Correcting these conditions, as it does, emphasizes the usefulness of the automatic feeding table. Any feeder, it is claimed, can keep boards of random lengths butted at the fastest rates of feed, which necessarily procures for the user all that the planer is capable of producing. This reduces costs per thousand, raises grades and consequently increases profits. In addition to this, the feeder is not overtaxed and has ample time to throw out the poor boards. All of this is obtained at less cost of labor than one is obliged to expend on a hand-fed machine, without taking into consideration the better results secured.

The table is practically a self-feeding device, as the only requisite is that the board be laid on the flat side as it ii dropped upon the angle irons previously described—the table does the rest.

### To Obviate Noise of High Speed Machinery

A new product that promises much quieting of the noise of high speed machinery is the so-called "Fibroll" pinion of prominent British manufacturers.

It is formed from a special woven fabric compressed into a solid mass under a pressure of several tons, and held together between steel flanges by threaded sleeves or threaded studs. The strength is claimed to be greater than that of leather, paper or other non-metallic pinions.

This pinion has sufficient flexibility to insure a good bearing across the full width of the face, and at high speed it absorbs shocks that quickly destroy iron or brass pinions.

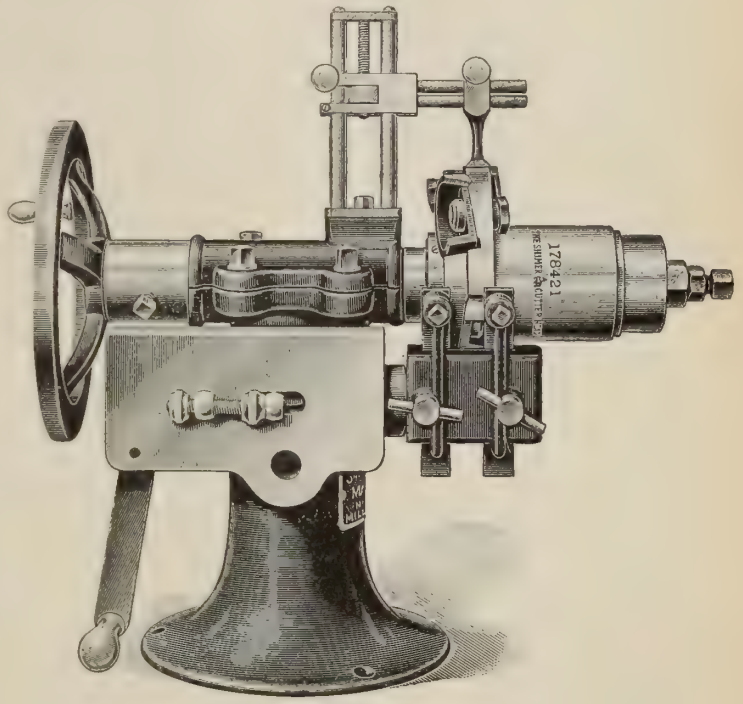
Soaked in oil in manufacture, it is not only self-lubricating, but is made moisture-proof as well.

### What a Horse Power Means

Very few people realize just what a horse power, as expressed in engineering terms, really means. When it is stated that the world's largest Curtis steam turbine, which drives an electric generator in the Waterside station, New York, develops 30,000 horse power, the meaning is vague and incomprehensible. Imagine this term reduced to man power, and almost every one can grasp its full meaning. If it takes twelve men to equal 1-h.p., then this mammoth turbine engine develops twelve times 30,000, or the working energy of 360,000 men. If these men worked in eight-hour shifts each day, it would require the services of 1,080,000 men every twenty-four hours to produce the working energy of this single turbine unit.

### The Shimer Cutter Head Jointing Machine

In connection with the new Shimer Limited Cutter Heads which have been advertised in this paper for some time, and which have made good in so many mills, the makers have also brought out a Cutter Head Jointing Machine, which is not only suitable for the new Heads but which has been adapted to their other



Cutter Head Jointing Machine

makes as well. This machine with the use of files, joints the edge of the Bits to bring them within a common cutting radius, so that each knife edge does an equal share of the cutting. Its careful use will improve the quality of work done and enable the operator to increase machine feeds if desired. The machine is also made with tracking attachment for setting the Bits before jointing and it can be used as a filing stand for holding the Heads while being sharpened with a file. The stub is ground to exact size of matcher spindles and all parts are carefully tooled, making the machine a very useful adjunct to the planing mill.

Further information and literature describing this and other tools will be sent upon application to Samuel J. Shimer & Sons, Milton, Pa., or Galt, Ontario, Can.

### To Stop a Leak in a Gauge Cock

Take the gauge cock apart and thoroughly clean the seat and stem of the valve. Take a dowel pin and turn to the size of the stem under the seat. Push the plug or dowel far enough down for the babbitt to grip the side of the stem below the seat. Then pour in sufficient babbitt metal to cover the seat about one-eighth inch. Now countersink the babbitt to form a new seat for the stem, but do not cut it down to the brass or it will cause a leak again. The seat should be bored only just enough to provide a good fit.

### Capital Increased

The Goose Lake Grain & Lumber Company, Limited, of Regina, Sask., has increased its capital from $200,000 to $300,000.

### Dimension Stock Should Be Cut Exact

There are about the same number of essential factors to be considered by the man who would succeed in the dimension stock business as in any other special line of wood-working. To succeed best he should show due regard for all of them. It is not the purpose of this paper to go into details relative to all of these features but there are a few things that may be overlooked because they do not appear to be essentials, and it is hoped to draw the dimension man's attention to such points.

A prime essential in the dimension business is smooth work with the machines to the end that the stock may present the appearance of quality. If the stock is cut roughly, thick in some spots, thin in others, and with corners out of square, it will not appeal to the buyer even though it be cut from the best of timber. This means that the very appearance of the stock through careless manufacture may detract enough enough from its value to spoil the chances for profit in the business.

It is an undeniable fact that appearance counts for a great deal even in lumber, and the more lumber is cut into special sizes the more opportunities there are to make or mar good appearances. Rip saws should be as carefully filed and set as for doing cabinet work, so that instead of ugly saw marks that must be planed out, there will be a clean surface that a very light cut with a planer will make smooth. Saws kept in excellent condition will do enough more work to pay for extra pains taken with them.

The band rip saw is a good machine to use in a dimension plant. Usually more pains are taken to keep it in order—it just naturally begets a higher order of mechanical skill—and besides it takes out less in kerf. It might appear that this does not amount to much in ripping up lumber and flitches, but by just a little figuring the dimension man will find that there is as much saving of kerf timber with thin saws in dimension stock work as there is in saw-milling. He should talk with the band saw people; they will give him the figures and the argument on this point. And then, whether he is using band or circular, he should see that they cut smoothly. It will pay, and it may mean the turning of the balance for or against success.

Another thing; when an order for dimension stock is received it should be filled exactly according to specifications. While this injunction is being given there comes to mind a pertinent instance. A millman had an order for chair-rung stock of a certain size and length. He cut it to size, but concluded that any multiple of the length would be satisfactory. So some was exact length, some double, some even four lengths. When the purchaser received it he deducted from the invoice so much per thousand for cross-cutting those of multiple lengths, and also some for trimming to exact length part of the stock that was cut single with too much spare length left on the ends for the stock to work in his lathes without equalizing.

The millman put in a complaint but the purchaser said that he would rather have paid the straight invoice and had the sock according to specifications. There is no need to dwell on the fact that it cost that millman more in prestige than was involved in dollars and cents in this one deal. Dimension stock is a different product from lumber, a product in which specifications must be followed carefully in detail if one would succeed in its manufacture. It is a business of details. The dimension manufacturer exists because he will take over and work out details which the user would otherwise have to work out himself. If he fails to work them out correctly the consumer naturally fails to see why he should continue to buy stock from that particular dimension mill. The man who will make a pronounced success of dimension stock manufacture is he who glories in the working out of details and in seeing that his machines do the finest kind of work, for these are among the important items of the buisness though they may be overlooked in a general consideration of essential factors. —Hardwood Record.

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### The Planing Mill Man and the Jobber

The planing mill proper has some peculiar angles to its connection with the door and mill work trade, and especially in its connection with the jobbing trade in sash and doors and mill work.

On the one hand, the planing mill often makes quite a number of doors during the season, while, on the other hand, the sash and door jobbing house may sell lots of frames, casing, base and other interior trim that seemingly properly belong to the planing mill.

Sometimes the planing mill is confronted with the proposition of making this casing and base for the jobber, at a price which will enable the jobber to market it. Sometimes the jobber gets standard patterns in this kind of work from manufacturers making a specialty of it, just as he gets his standard patterns in doors and sash.

For the trade in his immediate community, and we might say in his entire county, the planing mill man might logically argue that it belongs to him, and that he can sell direct to the consumer and have a better chance for profit than when selling through the hands of the jobber and allowing the latter a discount.

That looks like plain sailing, doesn't it? But there is scarcely anything without more than one side to it. When the planing mill man gets to ignoring the jobber or the dealer in sash and doors and refusing to make close prices for him, then the jobber goes to work and puts in a few machines himself, machines that enable him to put up odd sizes in sash and doors, make window frames, transoms, store fronts, and do quite a lot of the special work that he might otherwise have to place orders for with the planing mill.

That complicates the matter a little and serves to show that it is never plain sailing in any kind of a proposition of this kind. There is always more than one side. Indeed, it is a rather puzzling situation, sometimes. It is difficult for the planing mill man to figure out which is best for himself, to cultivate and develop a direct trade and ignore the dealer in sash and doors, or make two sets of prices, one on quantities to the sash and door dealers, the other on special orders to the consumer.

Each mill man will have to figure it out for himself, in his own location, and decide which is best, and perhaps change his mind now and then; and in figuring it out he must look at all sides of the matter.

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### The Round-head Jointer

The round cutterhead and the thin steel knife have found their way to the jointer or top smoother. One examined recently developed some points, too, that some may be overlooking. The thing featured strongest when the round head was first introduced to the

jointer was its safety, as compared to the square head. That is an important point, but perhaps it has been so prominent that it has caused us to overlook another point of importance, and that is the quick and accurate setting of the knives. Given a round head that is turned perfectly true, it is a comparatively easy thing to fit a positive gauge to it that will enable one to quickly and accurately set the knives, and set them the same way every time. This is, of course, an important point in getting smooth work and the full measure of it from a machine; but that is not all, at least not all with the jointer. The jointer table has to be very carefully adjusted to the knives to get right results; just a little variation in the amount of extension when the knives are put on may cause lots of trouble in adjusting them. With the round head and a positive-set gauge, this variation need not occur, for it is easier and quicker to set the knives just the same each time. This alone should make the round head worth all its extra cost for the top smoother or jointer.

### Care of Finished Stock

With the furniture factory, planing-mill, or anywhere that the finished stock is of a grade that is finished natural and not painted, where freshness and the tone of the wood is an object, it is almost as important to take proper care of it after it has been through the machine as it is to exercise care in doing the work right with the machine.

Anybody knows, or ought to know, that it is not good for clean, bright finished stock to handle it with soiled hands. In sash and door houses where they exercise great care in keeping the stock fresh, because it must be kept stored a long time, they often make the men handling it wear clean duck gloves or something of the kind so as to prevent soiling it with the hands.

Then, in storing it they take pains to keep not only the sunlight but the daylight away from the stock. They keep it in dark warehouses where it will remain as fresh as if it had just come from the machine.

Stock in the furniture factory is not often carried such a length of time before being finished because it is realized that the sooner the finisher follows after the jointer the better. Sometimes, however, it is necessary to keep the stock stored some time before it is put up and finished. For this purpose there should be provision made to protect the stock not only from dirt and dust, but from sunlight and in so far as it is practical from daylight.

You should have dark storage rooms that are clean and preferably dust-proof and especially should they have these for left-over stock that may come in useful on a future order. It is the one sure-way to keep it fresh and to get real satisfaction out of the work.

Above all, sunlight should be avoided. A truck load of finished stock should not be allowed to stand where the sun shines on it brightly. The sun is one of the greatest bleaching agents and will take the life and tone out of wood quicker than almost anything else except the splashing and dripping of water on it, a thing which is not allowed in any well regulated institution.

### Glue-jointing With the Saw

Occasionally some one reports using or seeing used some type of rip saw for making glue joints in wood, and nearly always this report is met with more or less scornful derision by machine wood-workers. Yet it is not only a fact that excellent glue joints have been made with the regulation types of rip saw machines, but there are recent inventions, some of which will likely be heard from in the near future, based on the idea of using the saw to cut glue joints on both solid lumber and veneer. Moreover, a properly-fitted saw makes the best glue joint in square work. It is merely a matter of careful fitting and smooth running. We may find in the course of time that certain shapes in saw teeth will give the best finished surface. Even now machinery men are experimenting with this point in view—having special saws made for this kind of work. But no matter what we may find in the way of special wrinkles in the future, we have already found that a good glue joint on either lumber or veneer can be made with a saw, and are likely to have this fact more strongly impressed on us in the future.

### Making Babbitt Metal

The composition of babbitt metal is a question about which there seems to be much confusion and diversity of practice, and the mechanic who undertakes to find out from the makers and users of the alloy just what it is composed of, and in what proportion, will probably receive many and diverse answers.

Many shops make their own babbitt, each one by a formula differing from most all the others, and in this way different specimens may be met with, varying from a mixture of eight parts of lead to one of antimony at one extreme, to one containing no lead and considerable copper and tin at the other.

Even the manufacturers and dealers will offer for sale "babbitt metal" in bars at prices ranging from 10 to 75 cents per pound, and they will insist that it is all "babbitt metal," only different qualities.

Now, if anyone wishes to use as a lining for boxes an alloy which can be sold as low as 10 cents per pound, of course he should be granted the privelege; but when he calls the stuff babbitt metal he deceives himself or someone else.

We often hear the expression good babbitt, poor babbitt, but there is really but one babbitt metal, and if any alloy is either much better or much worse than that, it is not babbitt, but something else. Different authorities give various formulas for the composition of the metal, but the following is the real standard babbitt metal: Melt separately 4 parts copper, 12 Banca tin, 8 regulus of antimony. The antimony should be mixed with the first portion of the tin, and the copper added after taking the melting-pot from the fire. The surface of the charge should be protected from oxidation by a covering of powdered charcoal.

This mixture constitutes the "hardening," and the babbitt metal is made by fusing one part of this hardening with two parts of tin, thus making the metal consists of 3.7 parts copper, 7.4 parts antimony, and 88.9 parts tin.

A new sawmill being erected by Alex. Johnson, in Abbotsford district, Fraser Valley, will commence cutting shortly. It will be equipped with Simonds saws and will have a daily capacity of about 35,000 feet.

Messrs. Gill & Fortune, who operate a large planing mill at Trenton, Ont., recently suffered a severe loss, when a large frame building containing 30,000 feet of planed hardwood lumber was destroyed by fire. The origin of the fire is unknown.

# The Carpenter and Builder

### Up-to-Date Methods in Building

Have you taken notice of the new method that is now in use in a great many places? We refer to the use of the Elliott Woodworker. This machine is coming to the front in a most remarkable manner, and is making a complete revolution in the carpenter business. What was once a long tedious process is now accomplished, by electric power, in one-tenth the time it formerly took, and with practically no exertion on the part of the operator. For instance, all the joists are cut on the job, both square and otherwise, the machine being so constructed that it may be set to any mixer. The joists for the building may be cut in one-quarter the time taken by hand. The machine is portable, two men being able to carry it anywhere, and by having fifty feet of wire it can be set out doors to cut joist floor and fence boards, also 2 x 4, etc. All foot and plum cuts of rafters can be cut, also roof boards cut on the ground and sent up ready to nail; shingle can be cut octagon or mitered for hip or valley. Then in getting out window frames, all the stock can be cut to a length, pulley stiles can be grooved, and by putting on the ⅞ dado head the heads and sills can be housed out in one operation.

The above work is done in a shed, it not being necessary to fasten it to the floor. It can be taken to the lumber pile direct, thus saving one handling of lumber. After the roof is on, the machine is taken inside, and all the trimming done. With it you can miter, rip, dado, cross cut, rabbit, bore, stick small moulding and grind tools. One of the great features of this machine is the stair routing. It can be set up for stair routing in half a minute, and a pair of 16 foot stair string housed out in 45 minutes. This job usually taken an ordinary carpenter the best part of a day.

All floor boards can be cut at one end, and to a length where they cut between wellholes, etc. In fact, by having the joist centered carefully all the floor boards could be cut. Another use for the machine is to cut the concrete forms. The large machine will cut 3 in. thick, and with it all kinds and lengths of forms can be made in one quarter the time a man can pick up his square and mark out and cut by hand.

It is also being used in the sash and door factories, being portable and run from the ordinary lighting system. It can be put up in the bench room and used for all kinds of trimming, stair routing, etc., and for cutting panels and dadoing there is nothing can touch it as it runs on the principle of the swing saw, the work being stationary and the saw drawn across. There is no binding whatever, cables for shelving and other long work can be handled much better than by the old method of running the stuff over the saw or cutter, and the lines being on top you can see what you are doing.

The machine is run by ordinary electric light current, requiring no special wiring, and it only costs from 75c. to $1.00 per month for power. The machine is fool-proof, the saw being covered with a hood to protect the workman. Mr. Elliott informs us they are now turning out one machine a day, they have had to enlarge their plant, and now find their space becoming too small for them. There are over 200 machines in use in Toronto along, among the best men in the city. Also a number in Hamilton, Ottawa, Montreal, and other places. Their travelling agent, Mr. E. Cook, is now in Montreal and has made arrangements with the hardware firm of Jas. Walker, Notre Dame street, Montreal, to handle the machine, and all orders sent to them will be promptly filled.

The Elliott Woodworker was on exhibition in Toronto and Ottawa Fairs, where it took a diploma for excellence and noverty. We heartily recommend all builders and other woodworkers to install one of these machines. We have watched their development and have seen the machines made, and can most heartily recommend them. White for particulars to W. A. Elliott, cor. College and Bathurst streets, Toronto.

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### Moving a House by Boat

A Chicago real estate dealer recently bought a two-storey colonial house on East End avenue, Chicago. In that location the investment did not appear to be gilt-edged, but the dealer knew that the same house, located in another section of the city, would find a ready sale at a greatly apprepiated price.

To move it in the ordinary way on land to that other district would have entailed expense so great as to wipe out the profit he hoped to make. So he decided to move the house by water. Set upon the ordinary skids, the house was hauled to the shore of Lake Michigan. In order to get the house upon the barges and scows on which it was to be towed along the lake shore, it was necessary to build a pontoon, and this operation had to be repeated when the house hove-to off the site of its new location.

Two large scows were lashed together and moored close inshore. Anchored fore and aft and snubbed up on the shore, the scows were held firmly in place, and then guyed by heavy hawsers, the house was skidded upon the scows.

A dozen "husky" stevedores warped the combination offshore, a tug hitched a hawser to the scows, and one hour later the house was snubbed up against the shore twenty-four blocks south of the starting point.

In less than forty-eight hours time all told the house was reposing on new foundations at Lake avenue. The entire distance, by land, was more than three miles. Fortunately there were no squalls or other weather disturbances to interfere with the work.

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Benson & Bray, who for the past five years have conducted a planing mill business at Midland, Ont., are erecting a large factory near the site of their present mill, which, when completed, will be one of the largest and most up-to-date on the Georgian Bay. The main building, which is now up, is of solid brick, slow burning mill construction, 240 x 74 feet, two storeys. It is being fitted throughout with the Automatic Sprinkler System of the General Fire Extinguisher Company. Everything is of the most modern construction and the building is being equipped throughout with the latest labor-saving machinery. Private switches running up both sides of the building will give splendid railroad facilities. The firm anticipate having the plant ready for operation by December.

### Building Contracts in Scotland

While the system of divided contracts is general in the building trades in Scotland there has latterly been a movement in the direction of the English system of single contracts. The Scottish master builders, however, are for the most part opposed to the change, and at the annual general meeting of the Scottish Building Trades Federation recently held at Aberdeen it was decided that representations should be made by the Federation protesting against the system of single contracts. It was further decided that an effort effort should be made to strengthen the associations of the different trades in these cities so that they might be in a position to return such schedules without estimating, if desired.

### Oak Flooring and Its Color

Foresters and manufacturers of oak lumber, divide all the oaks into two distinctive groups—ths white oak (quercus alba) and the red oak (quercus rubra). The red oak requires two years to mature its acorns and the white oak but one year.

The woods of the two groups are structurally different. In physical structure the white oak is of a much denser texture than the red oak.

The white oak for flooring purposes is preferred, as it receives and holds a higher polish, and is considered the most durable and satisfactory.

The red oak is now much more abundant than the white oak. It grows faster—thus it is more porous and is generally regarded as inferior in strength and toughness to the white oak when made into flooring. However, both varieties make a floor of unqualified excellence.

### The Mediaeval Joiner

The joiner held no very conspicuous position in the Middle Ages. A certain number of references to him and his work occur in the account books of mediaeval builders, but such references are very few in comparison with the constantly recurring entries referring to carpenters. From these facts we may very safely draw the conclusion that no very great number of joiners were employed in the Middle Ages, the work proper to the joiner being then commonly executed by the carpenter, says a writer in one of our London exchanges.

In a manuscript in the Record Office (Exch. Acc. 474-12) some particulars of work done by joiners at the Tower of London in the time of Henry VIII. are set down. Among other details we read of work having been done on "dyuers pressys which Master lieutenant hathe to ley his harneys in . . . More wrought by the said Joynours, lxxviii. monyalles (mullions for windows) of tymber in the Kynges gallery and in the counsell chambre, redy wrought, as also the mendyng of the rabettes of the wyndowes."

The joiner sometimes executed work in "fretyng and panelyng." (M.S. 465-20.) Sometimes, as in MS. 474-5, he was called in to work on "losyng the bed," which perhaps may have been a readjustment of mortise and tenon. Bedsteads were commonly made by carpenters. Instances of joiners working on the wooden framework of the ceiling may be seen in MSS. 474-12 and 499-19. In the former we read, "Taken downe by the saide joynours, the olde selynges of my lady the Kynges grandmother;" in the latter a "joynour" is paid for "selyng" a small chamber.

The wage commonly paid to the mediaeval joiner we are unable to discover, the references to his labors consisting for the most part of entries of the payment of a lump sum for the execution of a specified job.

In "The Records of a London City Church," published by the Early English Text Society, we read of a joiner in 1483 occupying a house at a rent of 20s. a year, the house being situated in the church-yard of St. Mary-at-Hill, near London Bridge.

Two curious notes referring to somewhat too exhuberant London joiners may be seen in the Acts of the Privy Council, 1543 (Roll Series). The notes are of sufficient interest to warrant insertion in this little notice. The join ers seem to have been acting in some play, and may perhaps have been apprehended in the dress of their respective parts. On April 10, 1543, "Certayne joyners to the number of XX, having made a disguising upon the Sunday morning without respect ether off the day or the ordre which was known openlye the Kinges Highness intended to take for the repressing off playes, were therefore committed to warde and bestowed, summe in the Tower, summe in Neugate, and summe in the Gatehows."

On April 13 the joiners were set at liberty:

"Certayne joyners which wer committed to warde for theyre unlawful disguising upon the Sonday before wer this day, after a good lesson, restored to theyre libertie."

### Lumber Philosophy

"I have never seen a mill yard yet," remarked a jobber, "that did not have many odds and ends and piles of stock, which the millman was anxious to move, and I have rarely taken a trip to the mills that I have not found in their yard, one or more items that I could place promptly. It is a strange thing to me that so few millmen have a policy of going through their yards at frequent intervals, listing these items and putting them before their customers.

"If I could educate my mill connections to do this, it would enable me to move a quantity of stock for them and allow them to turn perfectly dead items into cash.

"It has always been a policy of mine to allow my customer to make some money on stock he buys from me. I will attend to my end of the profit, but I endeavor as much as possible to make a price to him, especially in any bargains offered to me, so that the man considers me as a valuable man from whom to buy.

"I know of a retail yard man who boasts that his buying is done so closely that no one ever makes any money on their sales to him. This, I believe, is a poor policy, as the salesman and the manufacturer who have bargains to offer certainly will not put them up to the man who is not profitable to them. The well trodden path is to the door of the man who is willing to give as well as take.

"I once knew a wholesaler who always represented his stock so high as to grade, widths and lengths, in fact everything connected with it, that when he did have a good car of lumber and so decribed it nobody believed it. Nothing that he offered was ever other than 'gilt edged,' with a few gold dollars hanging down at the end of each board, and I am confident that he suffered in consequence with the trade."

Open piling, with plenty of air space between layers of lumber, does much to prevent sap-staining in the summer time; also, tunnels through the piles help some, too.

### Burls and Bird's-Eye

One of the most beautiful of all figured woods is that produced by burls. Burls are abnormal growths or excrescences common to almost every species of tree, although in only a comparatively few cases are they of merchantable character. They may arise anywhere on a tree, but those of greatest value are at the root collar, usually just below the surface of the ground. Burls are produced as a result of some injury, such as forest fires, insect attacks, gnawing of animals, excessive pruning, etc. The effect of the injury is to stimulate the growth of dormant buds or to give rise to a great many new ones which can not develop into branches but do form a gnarly and interwoven mass of woody tissue of very intricate design. The wood is very dense and hard. Inside the bark the surface of a burl is ecovered with spiny warts—the points where the buds emerge.

A dormant bud is one which never developed into a shoot or branch. Only a limited number of the buds in the axis of the leaves and bud scales of the shoot develop, since there would be no room for them to grow even if there were food enough to nourish them. The majority, and especially those toward the base of a shoot, persist for a longer or shorter time—sometimes for a century or more in trees with smooth bark—and only under certain conditions do they burst forth into new shoots.

In order that such buds might remain alive and not be covered up by the woody layers it is necessary that they grow in length each year just enough to keep the surface. In the centre of each bud is a small cylinder of pits and around it is a small mound of wood, the fibers of which run in different directions from the rest of the wood. When cut across, the pith of the bud appears as a dark speck surrounded by a small mass of fibers on end, producing a figure known as "bird's-eye."

In addition to these dormant buds new ones may arise which are known as adventitious buds. If there is sufficient nourishment and conditions are favorable they will grow into shoots, but in the case of burl formation they make a short growth, die at the tip and their places are taken by others, which repeat the performance year after year. The consequence is an extremely complex nest of buds, all capable of growing in thickness to some extent but not growing out in length. In course of time this burl may attain dimensions measurable by feet and weighing hundreds or even thousands of pounds.

Burls growing on the upper portion of a tree are usually without value for cabinet work on account of defects due to insects, included bark or other causes. Valuable root burls are turnip-shaped or sometimes one-sided. They are rooted on the under side and edges, and at the place of attachment of a large root the grain is usually straight, thus detracting from the value of the burl. It requires long experience to be able to judge, from external appearances, how a burl is going to open up, and in cutting or slicing the veneer very careful manipulation is necessary to obtain the largest pieces with the finest figure.

Trees producing merchantable burls are black walnut, black cherry, ash, birch, alder, oak and redwood. Walnut burls are most sought after and their value in the rough ranges from ten or fifteen cents a pound upward. Trees producing burls are usually rather dwarfed and stunted and grow in the open rather than in dense woods. In fact the presence of a large burl is very likely to cause the tree to be poorly developed, and in a forest such trees would sooner or later be shaded out.

Burls are common on the walnut trees of Austria, Turkey and Italy, and owing to their finely mottled and beautiful figure, are much sought after for cabinet purposes. According to LasLett those of the best quality have been know nto realize from $250 to $300 per ton in the rough. In Algeria fires and grazing, which have destroyed the finest forests of Thuya, cause large and valuable burls. Formerly they were much sought after for the manufacture of fancy articles of furniture, but as it was necessary to destroy large areas of timber to find the beautiful specimens, the wasteful exploitation was finally abandoned. French cabinet makers use the burls of the hazel tree of the Levant to considreable extent.

### Bird's-Eye

Everyone is familiar with the figure known as bird's-eye, which is particularly common in sugar maple. Almost every tree of this species contains at least a few bird's-eyes, though in only a comparatively few cases are they abundant enough to give value to the wood for cabinet and furniture work. Bird's-eye is also found in birch, ash and yellow poplar to some extent, and is characteristic of lodgepole pine.

The cause of bird's-eye is usually ascribed to dormant buds, and in some instances this is correct. There are, however, at least three other causes of this peculiar formation which are usually overlooked. If the wood just beneath the bark is examined it will be found in some cases to be covered with little proturberences not unlike those of burls, in others with conical depressions or pits. The proturberences occur usually as the result of dormant buds as in burls, although they are much fewer in number and distributed over a larger area.

Generally the surface of the wood under the bark of the tree is not uniform and smooth but is more or less channeled or pitted. Usually any one depression is restricted to one of a few layers of growth, that is, are seen only on one or few growth rings and then lost, the surface of a particular spot being evened up by growth. In the case of maple, however, the tendency to preserve any particular contour is very great and the depressions, though ordinarily small, are very numerous. Fitting into each pit is a sharp spiny projection of hard inner bark which, if it did not produce the original impressions, at least tends to prevent it being obliterated when onse formed. No satisfactory explanation has been offered as to the primary cause of this peculiarity.

It has been demonstrated by Dr. Hopkins of the United States Bureau of Entomology that sapsuckers are frequently the cause of bird's-eye. The birds sometimes puncture only to the sap-wood, but more commonly pierce one or more growth rings to procure the sugary sap which is produced at certain seasons. The formative tissue (the cambium layer which separates wood and bark) attempts to heal the wound and a cone of wood is produced, its size and form depending upon the extent of the injury and the vigor of the tree. Succeeding layers of wood are distorted by this cone. As a rule if growth following sapsucker wound is vigorous, succeeding layers of wood will be bent outward over the wound; if weak, the grain will bend inward. When tangential sections of such wood are made, the depressions or elevations are cut across, and owing to the irregular arrangement of the fibers, bird's-eye figure resembling the natural formation is

produced. It can usually be recognized from the arrangement of the bird's-eyes in rows corresponding to the well-known type of sapsucker work in the bark. Yellow poplar trees are very commonly worked on by the sapsucker and frequently are covered with girdles and single punctures from top to bottom, producing bird's-eye, though accompanied by holes and stains resulting from the original wound which reduce or destroy the value of the wood for veneers.

Still another cause of bird's-eye is found in lodgepole pine and occasionally in other conifers. Examination of the wood inside the bark shows it to be covered with small depressions or dimples. These are produced by resin blisters in the inner bark, which press upon the cambium layer and cause the newly formed fibers to be moulded around them. Tangential sections reveal the bird's-eyes in large numbers, but as the irregularity of structure is not great, they are not conspicuous like those in maple. Their abundance in lodgepole pine serves as a ready means of identifying the wood of this species.

Bird's-eye in maple is often accompanied by wavy grain, which when sawed produces a figure known as "landscape grain." This name is given it because of its resemblance to a contour map. The contour-like lines are due to the denser and darker late wood of the growth ring cut across in sawing the material.—Exchange.

### Peace River Timber

In his report to the Minister of the Interior on timber conditions around Lesser Slave Lake, D. Roy Cameron states that "the ever swelling tide of immigration into the Peace River country and vicinity renders it imperative that steps be taken to set aside non-agricultural lands in order that the timber resources of that country be conserved for the need of future generations." Muskeg he found to be omnipresent, associated in some instances with areas of lodgepole pine, black spruce and fir. The aspen, a tree which grows in considerable quantities in the district, is so susceptible to attacks of "heart rot" that 43 per cent. of the total is useless. Figuring on 3.2 cords of aspen per acre which might be used for pulpwood and four cords of balsam poplar, Mr. Cameron estimated that the whole area he traversed about the lake would produce 6,750,000, to which might be added about twice that quantity of defective, but not destroyed wood. The aspen and poplar balsam trees average about 8 inches in diameter, 4½ feet from the ground.

Along the Swan River, so-called "cottonwood" flats are found where this species grows intermixed with some spruce. Here are found trees growing one hundred feet high with 65 feet clear and a diameter at breast-height of from 15 to 60 inches. The average will be about 24 inches. The older and larger trees are mostly defective from heart-rot, but the younger upto 2 inches in diameter are sound and beautiful timber.

"There are large areas of non-agricultural land north and south of the lake," Mr. Cameron declares in his summing up. "These areas are, in general, more or less elevated regions and form the head-waters of streams draining in every direction. The question of the preservation of the forest cover, so that as even a flow of water as possible may be insured, is an important one in this district because the main drainage streams are navigable rivers. Of late years, the continual denudation of the country containing the head-waters of the Lesser Slave River tributaries by fire has given rise to alternating conditions of very low and very high water, which has proved very harmful to navigation. Indeed, things have come already to such a pass that every bad storm means a miniature freshet, and a week's rain, a swollen torrent, bringing down trees and driftwood of all kinds, which is a menace to navigation. The principal rivers causing this are the Moose, Driftpile, Saulteux and Otauwau."

### Linderman Company Officers Elected at Annual Meeting and Satisfactory Report Was Read

At the second annual meeting of the Canadian Linderman Company, Limited, the following Board of Directors was re-elected: Messrs. B. A. Linderman, M. H. Powell, John G. Emery, Jr., C. C. Billinghurst, D. W. Kara and William Munroe.

The past year's officers, namely, Mr. B. A. Linderman, president; Mr. J. G. Emery, Jr., vice-president; Mr. D. W. Karn, treasurer, and Mr. William Munroe, secretary, were also re-elected.

The report of the past year's business was highly satisfactory, showing total sales of $109,000; shipments, $76 000; unfilled orders on hand, $37,000. The usual seven per cent. dividend was declared—Sentinel Review, Woodstock.

### Housing the Factory Band Saw a Good Idea

It is not merely a matter of safety and protection for both operator and machine that makes it advisable to house in the factory band saw, but it has become an imperative matter of factory law requirements, too. In other words, we have passed the stage of debating whether or not band saws should be housed; it is merely a matter of the best way to do it.

The best place to house a factory band saw is right in the factory or machine shop where it is made, before it is sent out to the user. Of course, this will not help you if you have one of the old-type open machines already on hand. Then you will have to house it in yourself, which is really not a very dizcult job.

When buying a new machine, give attention to this feature, the housing. There are machines made and advertised now with the housing complete around them, just as ready to set down on the shop floor as the old machines were when we did not think of housing them at all. It saves time and money to buy them in this way; and, besides, the people who build them should be in the best position to equip them in a proper manner with housing.

By and by we will perhaps reach the day when nearly every wood-working machine will have all the exposed mechanism housed in before it leaves the factory, and all shavings or exhaust hoods fitted and attached so that the operator will not have to wrestle with this problem. It will be better for both the machinery builders and the operators.

F. R. Fisher, Newmarket, Ont., is interested in a new furniture factory which it is proposed to erect at Stouffville, Ont., at a cost of $75,000. The building will be of steel and concrete construction, 200 ft. by 50 ft., and will be equipped for the manufacture of office furniture, fixtures, etc.

Hay & Company, Limited, have been incorporated with a capital of $200,000, to carry on business as lumbermen, saw and planing millers, woodworkers, etc., with head office at Woodstock, Ont. The provisional directors are Malcolm Douglas, manager, and Thos. Lyall, manufacturer, of Woodstock, Ont.

# Told on the Log Deck

By Horace Raymond Fiske

Sunday afternoon usually found a number of the employees of the Unaka Lumber Co. lounging about the mill, the location being severely out of the way and therefore the attractions few. The sawyer, the engineer, the filer, even the superintendent, together with men holding positions of less importance, were there.

"Byerly," queried the superintendent, "how did you get to be a filer?"

Byerly, tall, square and serious, paused in his whittling and looked toward the man who had addressed him. For a moment he said nothing, but appeared to be thinking. Being a person of few and always well-chosen words, none were surprised at his apparent reticence. But finally he spoke.

"How did I come to be a filer? Super, I could tell you in one word, but I'm not going to do that; I'm going to tell you all about it."

So the filer told his story:

Unhappily or not, I was born of common parents, with no senators or governors in my family tree, no professional men, nothing but plain, honest people. We can't all be notables, you know; and it is something of a consolation to know that without us, the great army of workingmen, the world could not exist. And I frequently think we are happiest, because the falls we get are not from such a height.

I had the limited sort of education boys got in those days, which, after all, was not so far different from the present time. At seventeen I found myself thrown entirely upon my own resources, without parents or near relatives. I felt that I would be equal to it, but for all my youthful self-confidence there was a feeling of being alone that hurt mightily. The idea that nobody really cared much about me finally nosed most of the good things out of me, and I began to grow indifferent as to what I made of myself. I left my home town and went to another place, a city of mills and factories it was.

There is always an element, more or less great, that thinks only of the day in hand, and nothing of the after years, or even of the to-morrow. With my grouch against the whole world, which I foolishly named a hatred for commercialism, I quickly fell in with the unsatisfied element. I was at heart an anarchist, pure and simple. It was a most dangerous thing, believe me.

Drink? I could beat any fish in the Pacific! I hate to tell this, boys, but it belongs. One night I woke up lying in the edge of a street in one of the suburbs. It must have been midnight. I didn't move anything but my eyes at first. Things seemed rather strange, and I had no idea of my exact location. Then I saw that there was a man sitting on the sidewalk, a few feet from me. The moon was shining brightly and I could see him plainly, almost as plainly as I see you fellows now. He was sitting motionless as a stone, with his hands locked about one of his knees. He wore a soft hat, pulled low, and he had a beard that was streaked with gray.

I stirred, then spoke, without any attempt to rise from my supine position on the grass.

"Good evening," he answered, very pleasantly. He bent toward me, and I saw that he had a band of crepe on his arm.

I sat up, out of respect for the sorrow I knew he had. I wanted to ask him why he was sitting there, but I felt a certain sense of littleness that caused me to remain silent.

"Where do you work?" he asked me, presently.

"I run a bolter at the Mordaunt mill," I told him.

"Could you get off to-morrow afternoon?" he wanted to know.

"I could," I answered. "Our mill is down for repairs, and it will be no trouble."

"That's so," he replied. "I knew the Mordaunt mill was down, but I had forgotten it. I am the filer at the Bellingham mill, over on the river. Come to the filing room; perhaps I can give you a better place."

"I'll certainly be there," I promised. And I went promptly.

The Bellingham mill was a big one, the biggest one in that city of mills. There were two 13-in. bands under the same roof, and the machinery and equipment were as good as money could buy. I paused on the second floor for a few minutes to see the big saws rip out lumber, which had always been a thing of both wonderment and interest to me, then went up to the filing room.

The old filer's name was Hayes. He had strong features, fighting features, I might say, with grey eyes that never looked anywhere except in your face, when he was talking to you. He was at the bench. As I approached him he turned his hammer and straightedge in one hand, the other held out to me.

I took the hand and shook it weakly. Somehow I felt that I steed in the presence of a man vastly better than myself, which, believe me, was not an incorrect impression.

"Do you know anything about saws?" he asked me, after a few minutes of polite talk.

"I know a bit about circulars, such as I have run; but I know less about bands than a hog knows about astronomy," was my rather flippant answer.

The average man would have laughed at my ludicrous figure of speech, but not so with old Hayes. He did not even smile. Life, with its seriousness, sat heavily upon him since his recent loss, which the crepe on his arm signified as plainly as his own words told it to me shortly afterward.

"My boy," he said to me, "I'm not going to say a word of censure to you, for I believe a man's own conscience deals a harder blow than any words could deal. I'm going to give you a chance. If you make the best of it, I'll teach you a trade, my trade; if you do not, I shall let you out and take in some one else."

"Buy why," I could not help inquiring, "did you pick me, whom you do not knew, above all the other men you do know?"

"When I walked down the street last night," he told me, "I found you—but you know all about that. I knew then that you needed the job more than the other fellows. I meant to take my son in when my present helper left, which is to be to-morrow. My son was about your age. He died. But he was a good boy."

"But he was a good boy! That short sentence was a sword of fire to me. It said that I was not a good boy, by any means. It said that he wished I were a good boy. It said that he wanted to help me to be

a good boy. It struck me so hard that I felt the whole building whirl under my feet.

I tried to look him straight in the eye, and succeeded. "I'll be hanged," I said, "if I don't be a good boy, too." And I meant it.

Gentlemen, there is a feeling that is as tender and unapproachable from the outside, it always seemed to me, as the feeling a bride has for her husband, as tender as the love a mother has for her children. It is the feeling that one strong man has for another in a case such as that which I have just told him.

The old man turned back to his hammering, and the first blow he struck missed the saw entirely. I went straight to my room in a boarding house on the opposite side of the town.

The next morning I appeared, overalled for duty, at the big Bellingham mill. I was to care for the round saws, and swage and sharpen the bands for the right-hand mill. The first thing showed me was the round-saw grinder, and I will say, modestly as I may, that I was quick to get onto its workings. Of course, I had a little trouble now and then such as the machine grinding irregularly, missing one tooth and striking another too hard.

"Don't be afraid to ask questions," the old filer would tell me each time I called on him for a little information. Then he gave me some pointers that were of great value; rather, he repeated the pointers, for he had told me before.

"One of the major things," he said, "is to get exactly the right adjustment when changing from a cut-off to a rip saw, and vice versa. Be careful about the right pitch of the teeth, and all. Keep lost motion out of the levers, especially the parts that turn the wheel on angles for the grinding of the cut-offs. You see, the wheel, having play, will cause it to strike the teeth at different angles, which may harm the extreme points, even when the machine is working well otherwise. Keep the wheel shaft babbitted closely, so that it will have no play whatever.

"And remember," he went on, "that those levers can be broken by pressing the feed-stop too hard against the finger. I have known even the frame of the machine to be broken by having the wheel too high, which was caused, of course, by the cam when the wheel got up as far as it could go without breakage. It is a good thing for beginners to turn the machine once around by hand when making the changes for different classes of saws, which will tell if there is anything out of place so hard as to cause damage."

I took it all gratefully. When I caught myself thinking that I was soon going to hold a big job all alone, I'd call myself down immediately. I knew I had a perfect sea of things to learn.

We used a jumper swage on the round rips. My first trouble with it came in my losing the pitch from my edger and bolter saws, besides grinding the wheel away rapidly on the face side. It was so simple that I felt like kicking myself when the old man showed me the cause. By the way, I will say right here that he never bothered after I got a start; only when I asked for information did he give it. This was not thoughtlessness on his part; he wanted me to strengthen myself by fighting, so far as it was consistent, my own battles, and he was right. That which a man learns himself he remembers longer.

This trouble lay in my swaging my points all from the face, thus making it necessary to do all the grinding from the face of the tooth, which robbed me of my pitch and made the backs hollow besides. I don't know how I got the idea that it was the correct way. The old filer quickly put me right. In fact, I found that I could actually pitch by turning the jumper swage slightly forward.

We used heavy round saws, and therefore did not keep a great amount of tension in them; but through wedging pieces of wood in the edger saw guides, we had quite a lot of levelling to do. For this we used a leather cap on the anvil, which would allow the ridges and lumps to be knocked out without interfering with the tension. It would not have hurt much to have stretched the saw slightly in the leveling process, had it not been that the leveling was never of the same amount over the whole surface. So we leveled on the leather-covered anvil, and tensioned in the bare anvil; that is, the little tensioning that was necessary.

On the day on which I was twenty-one years of age, an hour before quitting time, Mr. Hayes approached me and told me that he was going to leave the mill a little early in order to transact some business, asking me to swage and grind the saw that was then coming off the left-hand mill. I agreed, of course, being only too glad to accommodate him.

After he had gone, I found, on the floor close beside his locker, his purse. In a flash all my former anarchistic darkness returned to my mind—for Hayes had not worked years as a successful filer for nothing. Here was he, I said to myself, with property and money to burn; here was I, with only a small savings account. I opened the purse and looked inside. There was at least $500 in it, in bank notes of large denominations.

He had been gone half an hour, long enough to have arrived in the business section of the city. He would not know, I reasoned, where he had lost his money. It would be very easy for me to keep it. He would never know what had become of it. I put it in my pocket and began to start the grinder over the freshly-swaged saw.

I wonder if any of my readers can appreciate the position in which I found myself? The filing room seemed strangely silent. The hum of the big bands and the intermittent roar of the edgers and trimmers and slashers below was lost as in a storm that did not reach me. I began to think, and as I thought I spoke:

You've always preached," I said, "that every man has his price, and that every man may be bought if his price is reached. You wouldn't keep $20, but you would keep $500. So $500 is your price."

The grinder, faultily adjusted in the disinterestedness I had suddenly shown it, began to burn the teeth so badly that I had to lift the wheel I had screwed it a bit higher.

"So $500 is your price," I said to myself.

I admit the temptation was great, but I viewed it in a socialistic light rather than as a theft, perhaps. But my mind carried me back a few months, and to the first meeting with John Hayes, that splendid man, there in the moonlight in a deserted street. Plainer than ever I saw the band of crepe and the hands locked about his knees. I heard his voice again, telling about hi son, and again I heard him say: "But he was a good boy."

And then I heard myself say, "I'll be hanged if I don't be a good boy, too," rather shakily.

(To be continued)

# From Coast to Coast

### Duchess at Logging Camp

The Duchess of Connaught and Princess Patricia visited a logging camp thirty miles away from Victoria, B.C., in the mountains and watched the men at work. At noon their Highnesses ate exactly the same fare as the loggers and professed to enjoy it hugely. Before leaving they shook hands with all.

### Large Forest Reserves

The province of Ontario has six forest reserves having a total area of 17,930 square miles. In addition to these, there are two provincial parks the combined area of which is 2,075 square miles.

### New Lumber Yard

The Palmer Lumber Co., who have headquarters at Kemptville, Ont., have decided to open a lumber yard at Smiths Falls.

### Big Pulp Contract

The Chicoutimi Pulp Company have just entered into what experts call the largest pulp contract in the world. This concern has agreed to supply Edward Lloyds Co., London, England, with 50,000 tons of pulp annually for a term of ten years.

The news also comes that three new pulp mills will be started in Canada next year, one in Ontario and two others on the St. Lawrence.

### Sues City for $50,000

Claim has been entered against the City of Toronto by the Conboy Carriage Co. for $20,000 for damages sustained by reason of the work carried on by the city at the Don bridge at the King street crossing.

An independent claim of $30,000 has also been entered by Mr. D. Conboy for damages to the factory from the same cause.

### Crushed to Death by Falling Logs

Louis Taillefer, aged about 45, whose home is in Quebec, was fatally injured by being crushed under falling logs while working for the Georgian Bay Lumber Co. in the French River limits near North Bay, Ont. The unfortunate man's legs were crushed besides receiving severe internal injuries. He was brought across the lake to North Bay but lived only a few days after the accident.

### Wood Pulp from Shavings

Owing to inquiries made by Canadian firms as to whether or not shavings are used by Norwegian manufacturers for the manufacture of wood pulp and the process of such manufacturing, inquiries have been made, and it is found that only some of the largest mills use shavings. The production, however, only becomes second or third class. The shavings are first chaffed small in a cutter and then put into the boiler. By experimenting it would appear that it could be easily done by any manufacturer of wood pulp.

### 200,000 Ties Smuggled

The Forest Branch a few weeks ago seized some 200 000 ties which had been cut in the Tete Jaune Cache country by Cowan Brothers & Cook, who hold a contract from the Edmonton and Dunvegan Railway. The firm had entered on timber belonging to the Province, cut the ties without license or the payment of ground rent and were smuggling them out of the province, without paying the royalty of fifty cents a thousand feet on them.

The result has been a fine of $230 for illegal cutting and confiscation of the ties. These were sold by public auction and were bought by the contractor at $2.50 a thousand. This will bring the province between $12,000 and $15,000.

There are said to be several others who have been taking cheap timber in the same way and the department is after them.

### To Build New Factory

The firm of Ewing & Murphy, of Toronto, who were burnt out recently, have received a permit to erect a two-storey building on the old site, 18 Cameron street. The building, which will be modern in every particular, will be brick and mill construction with cement foundation. This firm are well known, and previous to the fire carried on a large wood-turning and general woodworking business such as flooring, siding, interior trim, etc. We understand work will be commenced at once, and when completed will give employment to quite a number of men.

### $1,100 Damages for Loss of Four Fingers

Gilbert Clouter, mechanic, was awarded $1,100 damages for the loss of four fingers, occasioned by an accident which occurred while operating a circular saw in the W. E. Dillon Company's woodwork factory of Toronto.

### Building News

For the month of September the Montreal building permits were valued at $2,146,018, an increase of $988,-142 as compared with the same month last year. The total for the year is $13,325,394, a gain of $1,815,964 as compared with 1911.

The amount of building permits has fallen considerably in Moose Jaw during September, only 75,-000 worth having been issued. It is anticipated, however, that the total for the ten months ending October, will be very close to the four and a half million mark.

### Workmen's Homes

Jago & Harris, the Toronto contractors, who are building the new foundry at the Canadian Locomotive Works, are the successful tenderers for the erection of the proposed thirty new workingmen's cottages to be built for Kingston Realties. It is their intention to have the houses ready for occupancy by January 1st.

### Lightning Set Fire to Pump Factory

The Paisley Pump Works and contents were completely destroyed by fire at Paisley, Ont.

The pump factory was owned and operated by Mr. Wm. Rusk and was one of the oldest landmarks of the village. The cause of the fire is supposed to have been lightning, as a severe electrical storm was in progress at that time. The loss will be a severe one.

# WOODWORKING MACHINERY

More than 1,000 Second-hand Machines, Renewed and Guaranteed.

52 Lines of New Machinery the Largest Stock in the World.

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Sawed and Sliced Quartered Oak Veneers
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Importers of
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Office and Mills:

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OAK
BIRCH
POPLAR
GUM

STANDARD THICKNESSES

**Walter Clark Veneer Co.**
Grand Rapids - Mich.

# Should be Investigated

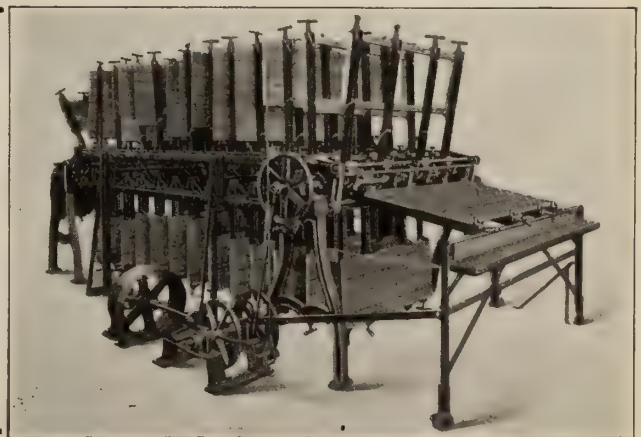
The advantages, conveniences and good points of this machine should be investigated by modern wood-working establishments.

**The Billstrom Automatic Glue Clamp Carrier**

modernizes the glue department thoroughly. The many dollars lost in the average glue room will help pay for this machine. One user said he would not be without it for many times its cost. Facts with complete particulars and description will help your investigation.

We have over 170 machines in operation.

**Nels J. Billstrom, 1315 Tenth St., Rockford, Ills.**



39 → 43 } N. Belitsky General Delivery, Dundas Ont.

# OPPORTUNITIES

**Advertisements inserted on this page for "Positions Vacant" or "Positions Wanted" twenty-five cents per insertion.**

Work on the new logging railway extension of the Columbia River Lumber Company, Limited, at Golden, is being vigorously prosecuted. Manager Uptegraff, of the Vancouver Equipment Company, Limited, recently interviewed the company relative to the supply of new cars necessary.

When a man builds a sawmill and starts out to develop his business, he should at least add one per cent. on the value of the article produced for publicity and exploiting his goods. So thinks Leonard Bronson, secretary of the National Lumbermen's Association. How many manufacturers are following this rule?

The Edgewood Lumber Company, Limited, Castlegar, recently installed a new drying kiln with a capacity of nearly 30,000 feet per day. An average of three carloads of lumber per day are being shipped to Alberta and Saskatchewan points.

Hon. Adam Beck, of London, Ont., who controls woodworking factories in Montreal, Hamilton and London, for the manufacture of veneer, thin lumber and boxes, is arranging to merge them into one company under the name of the Beck Manufacturing Company, with a capitalization of $500,000. Another plant will be erected in Toronto on the corner of Wilton avenue and River street, at a cost of $60,000. In organizing the new company the co-operative principle will be adopted. The heads of departments, the managers, and employees who have been for a number of years in the company's service, will be given stock and have an opportunity to add to their holdings from time to time.

## Manufacturers

**Know that good work depends to a great extent upon good workmen. If you wish to get in touch with this class of men insert your want ad. on this page—the best men in the woodworking trade read it.**

**Wanted—Position as foreman or superintendent of furniture factory. References. For particulars apply Box 33, Canadian Woodworker.**

Position wanted, as band and circular saw filer. It does not make any difference what gauge width, length, or diameter the saws are. Satisfaction guaranteed. References O.K. Married. Box 39, Canadian Woodworker.

Wanted—Well experienced foreman thoroughly posted in manufacturing of hardwood flooring can get immediate position at mill running whole year. Apply to Hardwood Planing Mills, Head of Tide, N.B., giving particulars of former employment and references.

**Wanted at once—Foreman to take charge of Wood turning Factory at Rawdon, Que. Must understand Waymouth Lathes and have experience. Apply at once, stating salary asked. The Laurentian Manufacturing Company, Limited, Rawdon, Que.**

Filer—Responsible position wanted as band and circular saw filer. Have filed log bands, upright and horizontal resaws, and in general I have ground band saws. Pony planer knives, and filed saw mill and factory saws to satisfaction. I guarantee you full capacity of your saws. minimum kerf, no cracks, no crooked lumber or bad resawed stock. Prefer a steady position. Age 30. Married. Address Box 43, Canadian Woodworker.

**"We offer the following machinery in good repair for sale cheap;—**

**1, 24-in. 2 Drum Fay Sander.**
**1 6-ft. Moore Stroke Sander.**
**1, 76 x 30 Power Veneer Press.**
**Several 50 x 26 Screw Veneer Presses.**

**Apply, Hay & Company, Woodstock, Ont."**


**WANTED**

A lumberman or practical builder with 5 to 10 thousand dollars. A rare opportunity for a man of ability of either kind.

**Box 44, City Heights, Vancouver, B.C.**

**Furniture and Show Case Manufacturers and Builders**

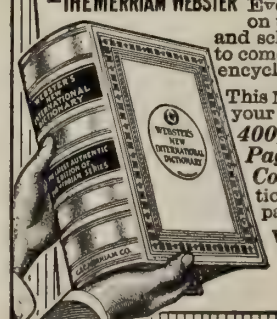
**ATTENTION**

We carry in stock a full line of Hardware Specialties for the manufacture of Show Cases, Counters etc., Furniture and Cabinets, Sash and Doors.

Our Catalog illustrates our numerous specialties and is complete with prices. Send us your name and address so we may send you one. We can very probably save you money on your present purchases.

**The Reflector & Hardware Specialty Mfg. Co.**
Western Ave. and Twenty Second Place, Chicago, Ill.

**"Just the Information We Need"**
**WEBSTER'S NEW INTERNATIONAL**
**—THE MERRIAM WEBSTER**



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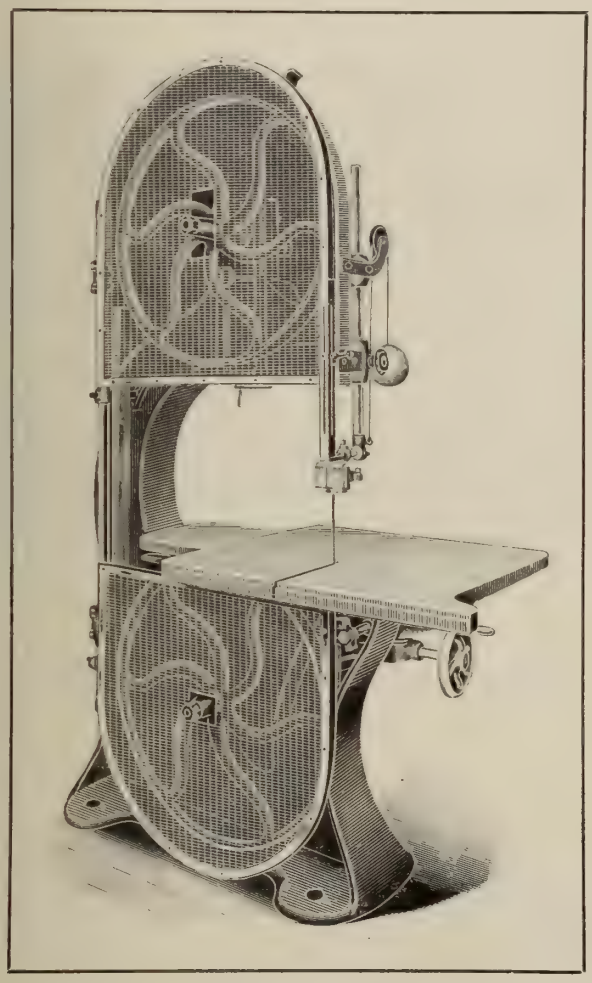
**SPRINGFIELD, MASS.**

# False Economy

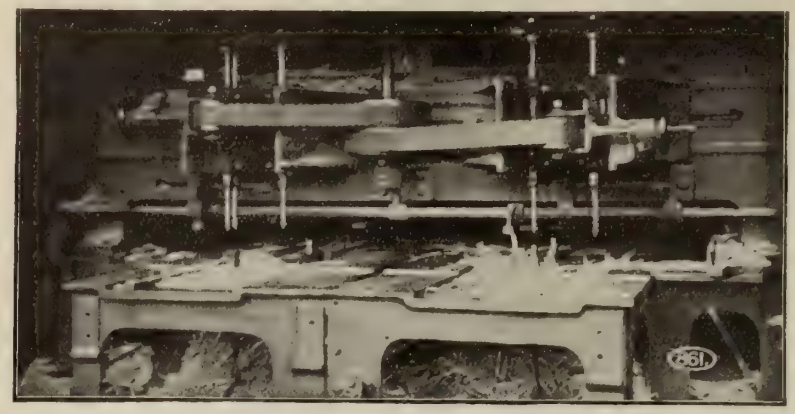


THAT only will fairly describe the policy of continuing the risk of accidents due to a neglect to furnish proper guards for Band and Circular Saws, Wood Shapers and Jointers and Stamping Presses.

Court records are constantly being made of cases where the comparatively trifling cost of these appliances are being saved only by incurring heavy damage verdicts with added law costs.

Save money by writing at once for Catalogue and information relative to Guards suited to your machine to

**The Jones Safety Device Co.**
**Limited**
**152 Dundurn St., Hamilton, Ont.**

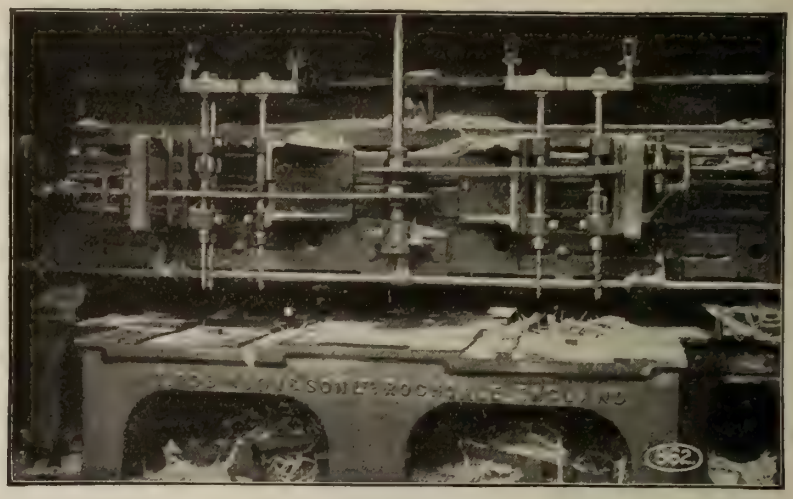


# Renold Patent Steel Driving Chains

## OVERCOME TRANSMISSION TROUBLES

Upper illustration shows leather belts driving an adzing and boring machine. Trouble was experienced with the belts.

The lower cut shows the same machine equipped with RENOLD CHAINS which not only overcame the trouble but increased the production over 30% and resulted in the users equipping in a similar manner all their machines.



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(Registered)

**Canadian Agents**

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Telegrams :—White, Paisley
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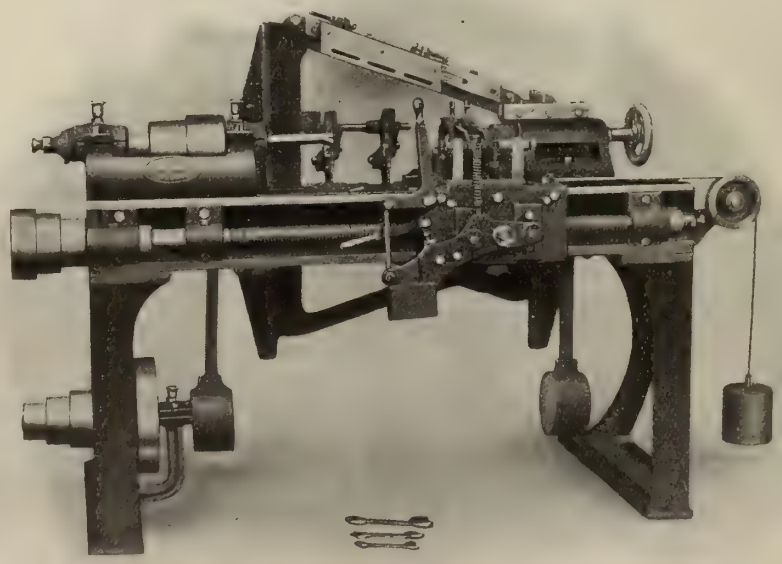

1911 DESIGN

## The WHITE

### Back Knife Lathe

is the machine for
**Duplicate Turnings.**

Just Re-designed.

Made in 5 Sizes, turning up to 6 in. Squares.

Work equal in finish to Hand Turning.

**Greater Accuracy. OUTPUT 3 to 4 times greater.**

## The WHITE LATHE

has distinctive features of its own, making it the fastest and most reliable Gauge Lathe on the market.

**Let us send you fuller particulars.**

*We are Specialists in*

TURNING and BORING MACHINES.

Our 40 years experience is at your disposal.

Patented Canada, 1910, Patents Pending U. S.

The illustration herewith shows our Elliot Woodworker, No. 2, set for mitering, also samples of work done on the machine. ¶ For cross-cutting and mitering, housing out stair stringers and other routing, it works on the principle of a swing saw, the carriage, with motor and saw, being drawn to and fro by hand. For ripping the carriage remains stationary. It is a combination of eight machines in one. With it you can rip, cross-cut, miter, rabbit, groove, plow, bore, stick mouldings, grind tools, or almost any kind of work required. It is fitted with a motor, and can be run by any house current; it can be carried from room to room, or out-doors for cutting joists, rafters, etc. One of the greatest features of the machine is the stair routing—a 16-inch stair string can be housed out in twenty minutes. You can save 30 to 40% of your labor bill by the use of this machine.

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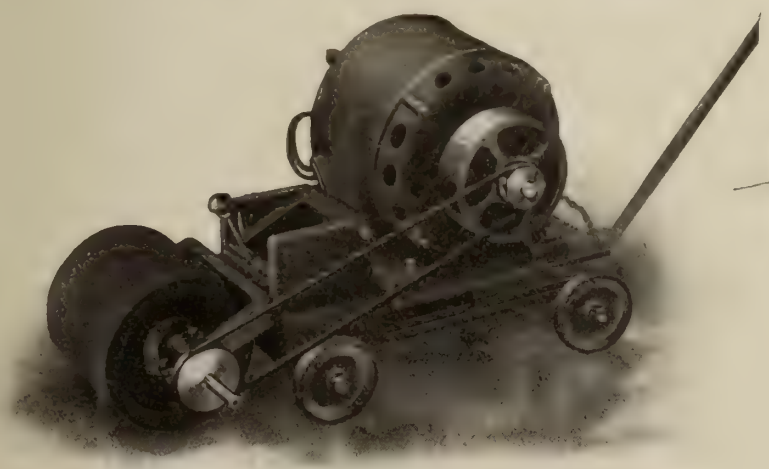
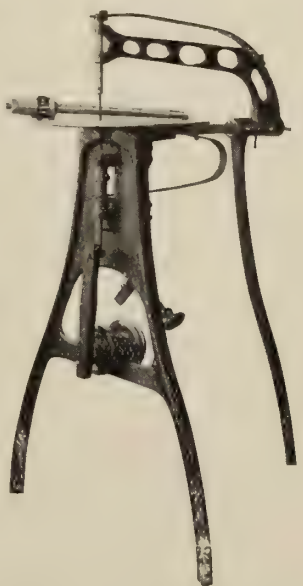
# The Elliot Floor Sander

## RUNS BY ANY CURRENT

**For Sanding and Polishing Hardwood Floors**

or can be run as an attachment to our woodworker





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cuts 2 in. thick runs by any ¼ or ½ horse motor or any power drive. The shaper can be set up in five minutes.

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MANUFACTURERS OF THE ELLIOT WOODWORKER

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Chicago Machinery Exchange, Chicago, Ill.
Ober Mfg. Co., Chagrin Falls, O.
Baxter D. Whitney & Son, Winchendon, Mass.
Canada Machinery Corp., Ltd., Galt, Ont.

### BAND SAW FILING MACHINERY
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The A. J. Burton Saw Co., Ltd., Vancouver, B. C.

### BAND SAWS
Canada Machinery Corporation, Ltd., Galt, Ont.
Chicago Machinery Exchange, Chicago, Ill.
Shurly Dietrich Co., Ltd., Galt, Ont.
The A. J. Burton Saw Co., Ltd., Vancouver, B. C.
R. H. Smith Co., Ltd., St. Catharines, Ont.

### BAND SAW MACHINERY
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Berlin Machine Works, Ltd., Hamilton, Ont.
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Canada Machinery Corporation, Ltd., Galt, Ont.
Chicago Machinery Exchange, Chicago, Ill.
J. A. Fay & Egan Co., Cincinnati, Ohio.
Baxter D. Whitney & Son, Winchendon, Mass.

### BROKEN CASTINGS BRAZED—MACHINIST AND DIE MAKER
W. H. Dunne, 1492 Queen St. West, Toronto.

### CABINET PLANERS
Canada Machinery Corporation, Ltd., Galt, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, Ohio.
Valley City Machine Works, Grand Rapids, Mich.
Baxter D. Whitney & Son, Wichendon, Mass.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Ltd., Toronto.

### CARS (transfer)
Sheldons Limited, Galt, Ont.

### CARVING MACHINES
Canada Machinery Corporation, Ltd., Galt, Ont.
Canada Machinery Agency, Montreal.
Chicago Machinery Exchange, Chicago, Ill.
J. A. Fay & Egan Co., Cincinnati, Ohio.
Hespeler Machinery Co., Ltd., Hespeler, Ont.
Valley City Machine Works, Grand Rapids, Mich.

### CHISELS
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, Ohio.

### CIRCULAR SAW MILLS
Canada Machinery Agency, Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
H. W. Petrie, Limited, Toronto

### CHAINS (Silent)
Jones & Glassco, Montreal

### CLAMPS (Chain, Carpenter, Cabinet, Pattern Makers, Bench, Mitre, Piling, Mounted and Rotary Wheel)
Black Bros. Machinery Co., Mindota, Ill.
J. A. Fay & Egan Co., Cincinnati, Ont.

### CLAMPS (Saw)
Shurly Dietrich Co., Ltd., Galt, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, Ohio.
The A. J. Burton Saw Co., Ltd., Vancouver, B. C.

### CLUTCHES
J. A. Fay & Egan Co., Cincinnati, Ohio.

### COLUMN CLAMPS
Black Bros. Machinery Co., Mendota, Ill.

### COLUMN MACHINERY
Chicago Machinery Exchange, Chicago, Ill.
J. A. Fay & Egan Co., Cincinnati, Ohio.
C. Mattison Machine Works, Beloit, Wis.

### CORE BOX MACHINES
J. A. Fay & Egan Co., Cincinnati, Ohio.
Chicago Machinery Exchange, Chicago, Ill.
E. & B. Holmes Machinery Co., Buffalo, N.Y.

### CUT-OFF SAWS
Canada Machinery Corporation Ltd., Galt, Ont.
Shurly Dietrich Co., Ltd., Galt, Ont.
Chicago Machinery Exchange, Chicago, Ill.
Berlin Machine Works, Ltd., Hamilton, Ont.
Simonds Canada Saw Co., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, Ohio.
Ober Mfg. Co., Chagrin Falls, O.
The A. J. Burton Saw Co., Ltd., Vancouver, B. C.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Limited, Toronto.

### CUTTER HEADS
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinnati, Ohio.
C. Mattison Machine Works, Beloit, Wis.
Samuel J. Shimer & Sons, Milton, Pa.
The A. J. Burton Saw Co., Ltd., Vancouver, B. C.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Limited, Toronto.

### DADO HEADS
C. Mattison Machine Works, Beloit, Wis.
W. A. Elliott, Bathurst and College Sts., Toronto.

### DIEMAKERS & MACHINISTS
W. H. Dunne, 1492 Queen St. West, Toronto.

### DISK GRINDERS
J. A. Fay & Egan Co., Cincinnati, Ohio.

### DOGS (Saw Mill)
J. A. Fay & Egan Co., Cincinnati, Ohio.

### DOVETAILING MACHINES
Berlin Machine Works, Ltd., Hamilton, Ont.
Chicago Machinery Exchange, Chicago, Ill.
Canada Machinery Corporation, Ltd., Galt, Ont.
Canadian Linderman Machine Co., Ltd., Woodstock, Ont.
J. A. Fay & Egan Co., Cincinnati, Ohio.

### DOWEL MACHINES
Thos. White & Sons, Paisley, Scotland.
Canada Machinery Corporation, Ltd., Galt, Ont.
Chicago Machinery Exchange, Chicago, Ill.
J .A. Fay & Egan Co., Cincinnati, Ohio.
Ober Mfg. Co., Chagrin Falls, O.
Valley City Machine Works, Grand Rapids, Mich.

### DRYING MACHINERY
Sheldons Limited, Galt, Ont.
Morton Dry Kiln Co., Chicago, Ill.

### DRY KILNS
Sheldons Limited, Galt, Ont.
Morton Dry Kiln Company, Chicago, Ill.

### DUST COLLECTORS
Sheldons Limited, Galt, Ont.

### DUST SEPARATORS
Sheldons, Limited, Galt, Ont.

### EDGERS (Gang)
Berlin Machinery Works, Ltd., Hamilton, Ont.
Chicago Machinery Exchange, Chicago, Ill.
Simonds Canada Saw Co., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, Ohio.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Limited, Toronto.

### EDGERS (Single Saw)
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
Simonds Canada Saw Co., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, Ohio.

**END MATCHING MACHINE**
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont
Canada Machinery Agency, Montreal.
Chicago Machinery Exchange, Chicago, Ill.
J. A. Fay & Egan Co., Cincinnati, Ohio.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Limited, Toronto.

**ENGINES (Steam)**
H. W. Petrie, Limited, Toronto.

**EXHAUST FANS**
Sheldons, Limited, Galt, Ont.

**FLOORING MACHINES**
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Agency, Montreal.
Chicago Machinery Exchange, Chicago, Ill.
J. A. Fay & Egan Co., Cincinnati, Ohio.
Canada Machinery Corporation, Ltd., Galt, Ont.
Baxter D. Whitney & Son, Winchendon, Mass.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Limited, Toronto.

**FLINT**
Wausau Quartz Co., Wausau.

**FLUTING HEADS**
J. A. Fay & Egan Co., Cincinnati, Ohio.

**GAINING MACHINES**
Berlin Machine Works, Ltd., Hamilton, Ont.
Chicago Machinery Exchange, Chicago, Ill.
J. A. Fay & Egan Co., Cincinnati, Ohio.
C. Mattison Machine Works, Beloit, Wis.
Canada Machinery Corporation, Ltd., Galt, Ont.
H. W. Petrie, Limited, Toronto.

**GAS ENGINES**
H. W. Petrie, Limited, Toronto

**GAUGES (Saw)**
Shurly Dietrich Co., Ltd., Galt, Ont.
Simonds Canada Saw Co., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, Ohio.
The A. J. Burton Saw Co., Ltd., Vancouver, B. C.

**GLUE CLAMPS**
Black Bros. Machinery Co., Mendota, Ill.
H. W. Petrie, Limited, Toronto.

**GLUE HEATERS**
J. A. Fay & Egan Co., Cincinnati, Ohio.

**GLUE JOINTERS**
Canada Machinery Corporation, Ltd., Galt, Ont.
Canadian Linderman Company, Limited, Woodstock, Ont.
Chicago Machinery Exchange, Chicago, Ill.

**GLUE SPREADERS**
Chicago Machinery Exchange, Chicago, Ill.
J. A. Fay & Egan Co., Cincinnati, Ohio.

**GRINDERS (Cutter)**
J. A. Fay & Egan Co., Cincinnati, Ohio.

**GRINDERS (Knife, etc.)**
Berlin Machine Works, Ltd., Hamilton, Ont.
Chicago Machinery Exchange, Chicago, Ill.
J. A. Fay & Egan Co., Cincinnati, Ohio.
The A. J. Burton Saw Co., Ltd., Vancouver, B. C.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Limited, Toronto.

**GRINDERS (Tool)**
J. A. Fay & Egan Co., Cincinnati, Ohio.
Valley City Machine Works, Grand Rapids, Mich.

**GROOVING HEADS**
J. A. Fay & Egan Co., Cincinnati, Ohio.
C. Mattison Machine Works, Beloit, Wis.
Samuel J. Shimer & Sons, Milton, Pa.
Canada Machinery Corporation, Ltd., Galt, Ont.

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Chicago Machinery Exchange, Chicago, Ill.
J. A. Fay & Egan Co., Cincinnati, Ohio.
Jones Safety Device Co., Hamilton, Ont.

**HAND SCREWS**
Black Bros. Machinery Co., Mendota, Ill.
J. A. Fay & Egan Co., Cincinnati, Ohio.

**HEATING APPARATUS**
Sheldons, Limited, Galt, Ont.

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Chicago Machinery Exchange, Chicago, Ill.
J. A. Fay & Egan Co., Cincinnati, Ohio.
J. M. Nash, Milwaukee, Wis.
Ober Mfg. Co., Chagrin Falls, O.
Baxter D. Whitney & Son, Winchendon, Mass.

**HUB MACHINERY**
Chicago Machinery Exchange, Chicago, Ill.
J. A. Fay & Egan Co., Cincinnati, Ohio.

**HYDRAULIC VENEER PRESSES**
Wm. R. Perrin & Co., Ltd., Toronto.

**INJECTORS**
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**JOINTERS**
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corporation, Ltd., Galt, Ont.
Canadian Linderman Co., Ltd., Woodstock, Ont.
Chicago Machinery Exchange, Chicago, Ill.
J. A. Fay & Egan Co., Cincinnati, Ohio.
Plessisville Foundry, Plessisville, Que.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Limited, Toronto.

**KNIVES (Planers and Others)**
Shurly Dietrich Co., Ltd., Galt, Ont.
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Samuel J. Shimer & Sons, Milton, Pa.
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H. W. Petrie, Limited, Toronto.

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Valley City Machine Works, Grand Rapids, Mich.
H. W. Petrie, Limited, Toronto.
Thos. White & Sons, Paisley, Scotland.

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Canada Machinery Corporation, Ltd., Galt, Ont.
Chicago Machinery Exchange, Chicago, Ill.
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C. Mattison Machine Works, Beloit, Wis.
Ober Mfg. Co., Chagrin Falls, O.
Valley City Machine Works, Grand Rapids, Mich.
Baxter D. Whitney & Son, Winchendon, Mass.
H. W. Petrie, Limited, Toronto.

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**MITRE SAWS**
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J. A. Fay & Egan Co., Cincinnati, Ohio.
Canada Machinery Corporation, Ltd., Galt, Ont.
Simonds Canada Saw Co., Montreal.
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Baxter D. Whitney & Son, Winchendon, Mass.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
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Chicago Machinery Exchange, Chicago, Ill.

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**PLANERS**
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Canada Machinery Corp., Ltd., Galt, Ont.
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Canada Machinery Corp., Ltd., Galt, Ont.
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Chicago Machinery Exchange, Chicago, Ill.
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Samuel J. Shimer & Sons, Milton, Pa.
Baxter D. Whitney & Son, Winchendon, Mass.
Black Bros. Machinery Co., Mendota, Ill.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie Co., Ltd., Toronto.

**PULLEYS**
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J. A. Fay & Egan Co., Cincinnati, Ohio.

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Shurly Dietrich Co., Ltd., Galt, Ont.
Canada Machinery Corp., Ltd., Galt, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Chicago Machinery Exchange, Chicago, Ill.
Simonds Canada Saw Co., Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, Ohio.

**RESAWS**
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Canada Machinery Corp., Ltd., Galt, Ont.
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Ober Mfg. Co., Chagrin Falls, O.
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Black Bros. Machinery Co., Mendota, Ill.
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Berlin Machine Works, Ltd., Hamilton, Ont.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
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**SAW TABLES**
Canada Machinery Corp., Ltd., Galt, Ont.
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Berlin Machine Works, Ltd., Hamilton, Ont.
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E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Limited, Toronto.

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Chicago Machinery Exchange, Chicago, Ill.

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E. C. Atkins & Co., Hamilton, Ont.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, Ohio.

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Canada Machinery Corp., Ltd., Galt, Ont.
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Chicago Machinery Exchangefi, Chicago, Ill.
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**SWING SAWS**
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corp., Ltd., Galt, Ont.
Chicago Machinery Exchange, Chicago, Ill.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, Ohio.
Ober Mfg. Co., Chagrin Falls, O.
The A. J. Burton Saw Co., Ltd., Vancouver, B. C.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Limited, Toronto.

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C. Mattison Machine Works, Beloit, Wis.
Ober Mfg. Co., Chagrin Falls, O.
Baxter D. Whitney & Son, Winchendon, Mass.

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Berlin Machine Works, Ltd., Hamilton, Ont.
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H. W. Petrie, Limited, Toronto.

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Canada Machinery Corp., Ltd., Galt, Ont.
Chicago Machinery Exchange, Chicago, Ill.
J. A. Fay & Egan Co., Cincinnati, Ohio.

**TRUCKS**
Canada Machinery Corp., Ltd., Galt, Ont.
Chicago Machinery Exchange, Chicago, Ill.
Sheldons, Limited, Galt, Ont.

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Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, Ohio.
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Canada Machinery Corp., Ltd., Galt, Ont.
Chicago Machinery Exchange, Chicago, Ill.
Ober Mfg. Co., Chagrin Falls, O.
Baxter D. Whitney & Son, Winchendon, Mass.
H. W. Petrie, Limited, Toronto.

**UNDER-CUT SELF-FEEDING FACE PLANER**
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Chicago Machinery Exchange, Chicago, Ill.

**GUMMERS, ETC.**
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J. A. Fay & Egan Co., Cincinnati, Ohio.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
H. W. Petrie, Limited, Toronto.

**VISES (Pattern Makers')**
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**VISES (Circular Saws)**
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J. A. Fay & Egan Co., Cincinnati, Ohio.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
H. W. Petrie, Limited, Toronto.

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Canada Machinery Corp., Ltd., Galt, Ont.
Chicago Machinery Exchange, Chicago, Ill.
J. A. Fay & Egan Co., Cincinnati, Ohio.
Ober Mfg. Co., Chagrin Falls, O.
Baxter D. Whitney & Son, Winchendon, Mass.

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Canada Machinery Agency, Montreal.
J. A. Fay & Egan Co., Cincinnati, Ohio.

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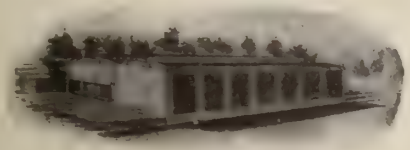

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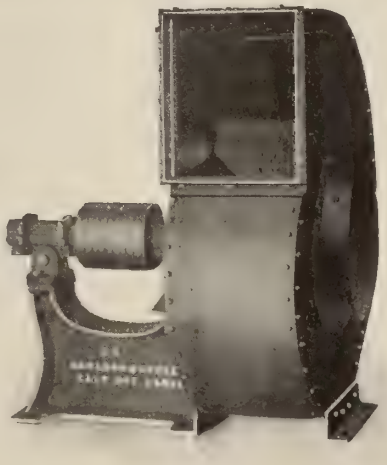

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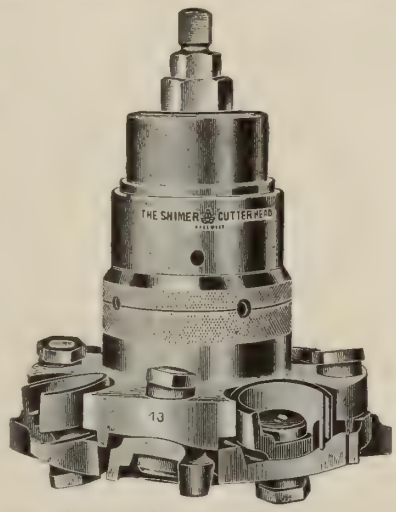
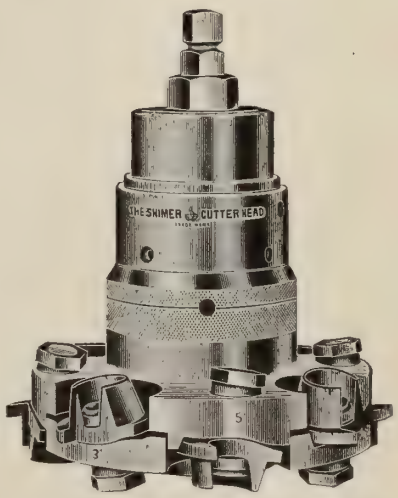



The Shimer Limited Tongue Head with Expansion




The Shimer Limited Groove Head with Expansion

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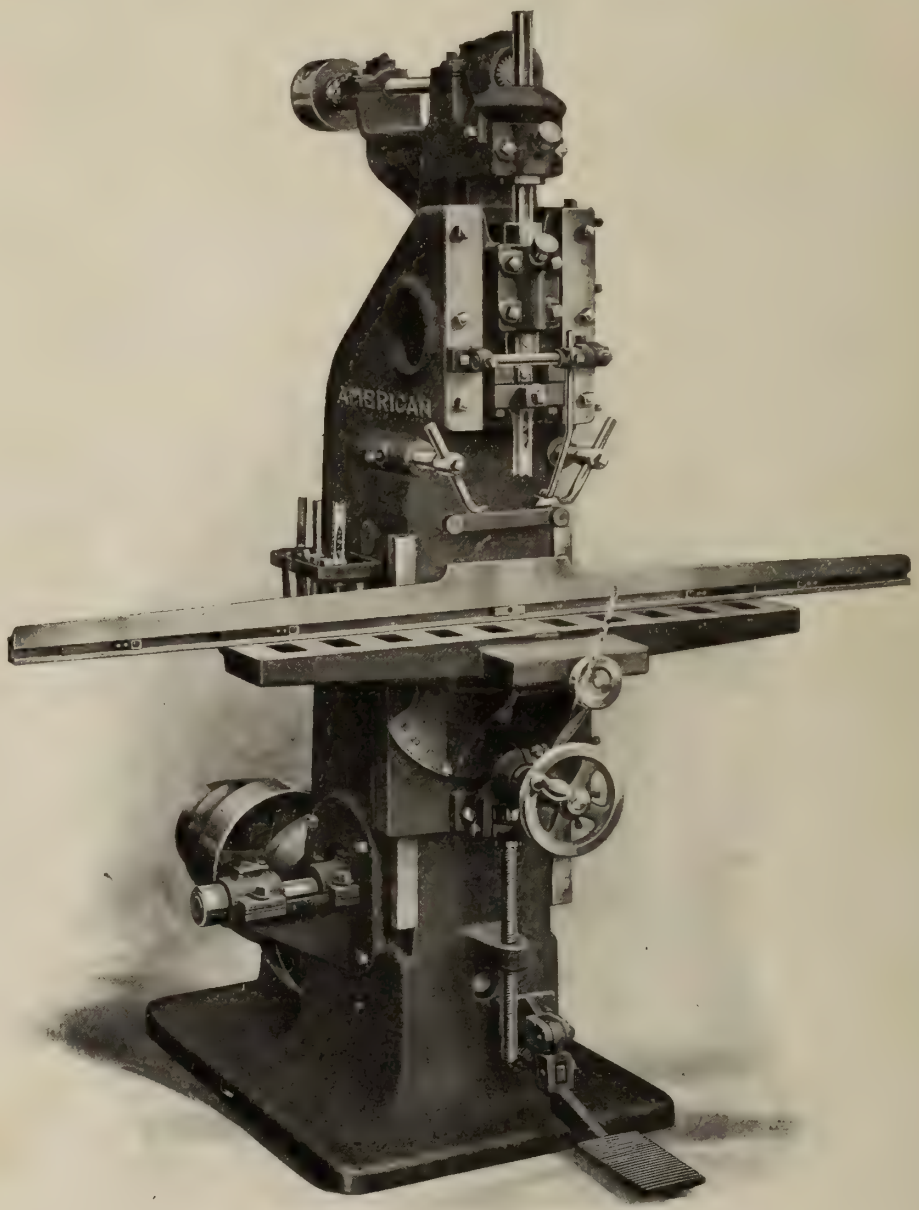


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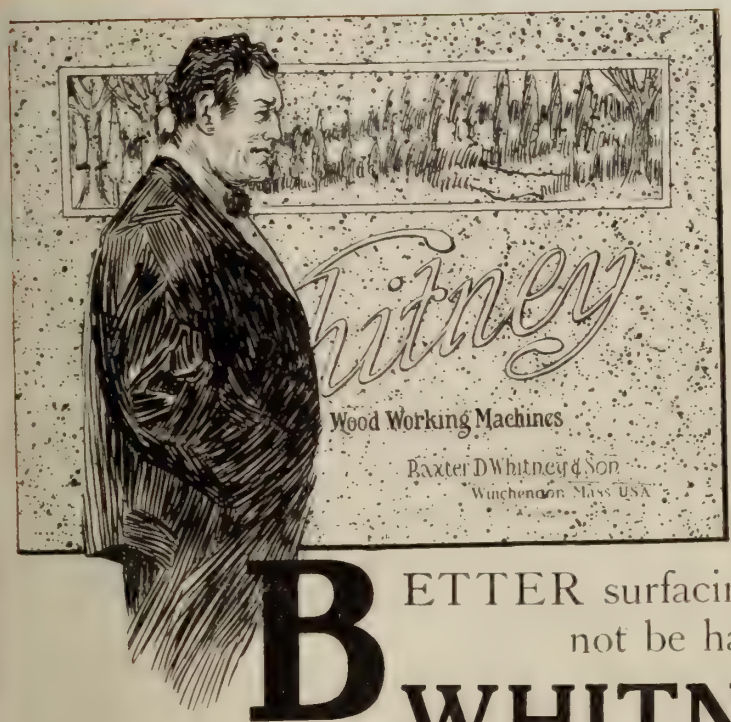
CANADIAN WOODWORKER

Toronto, November, 1912



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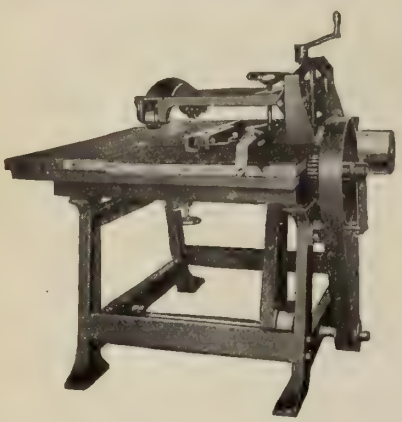

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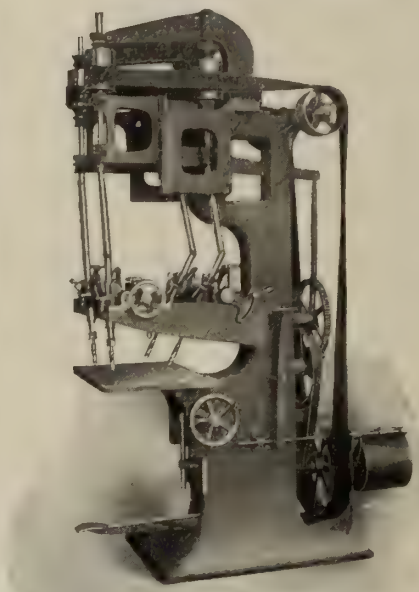

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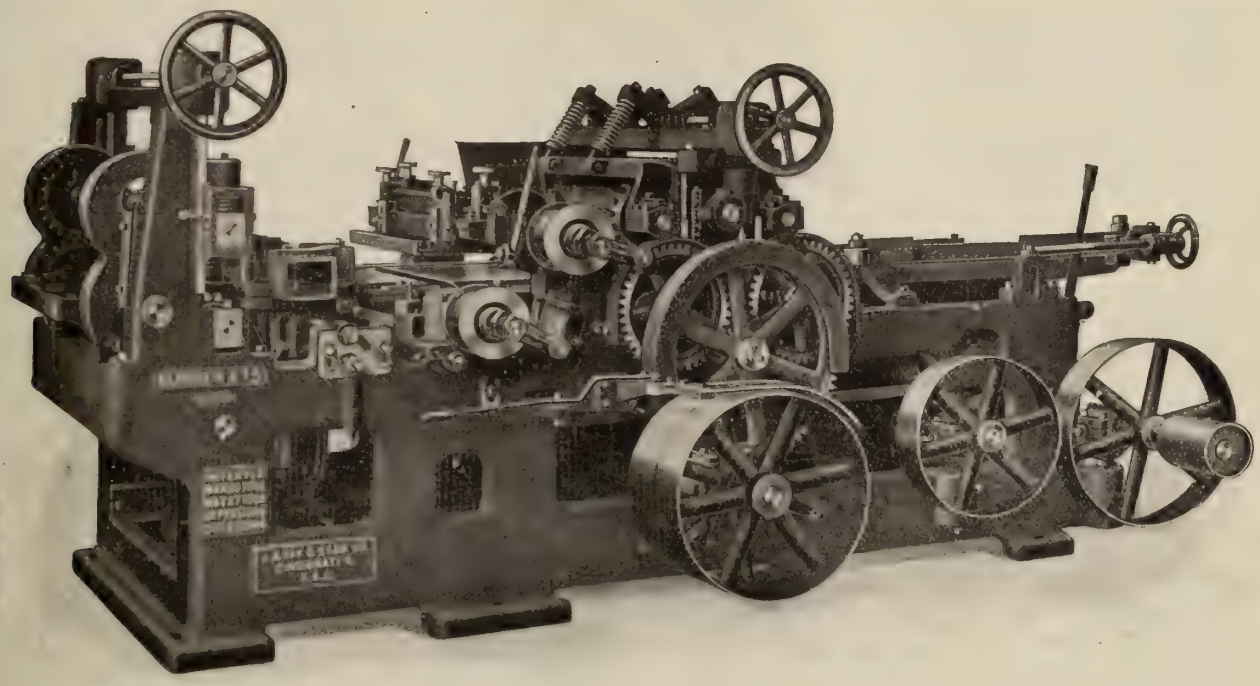

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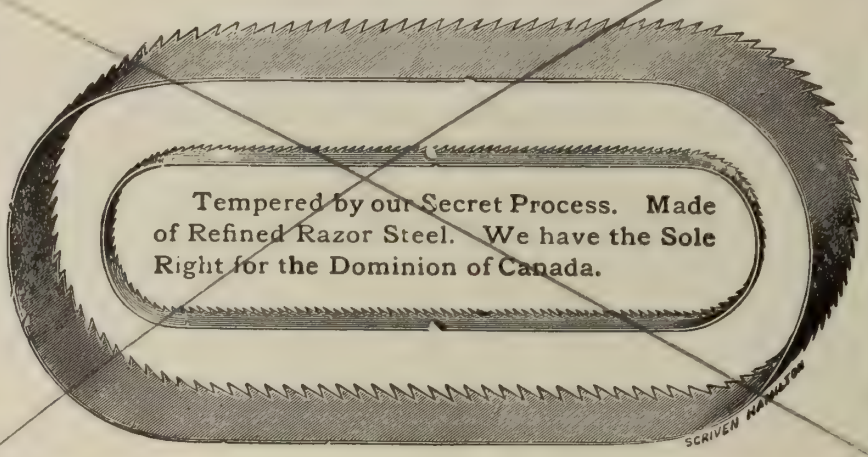


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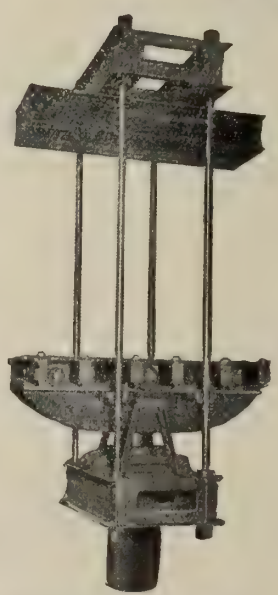

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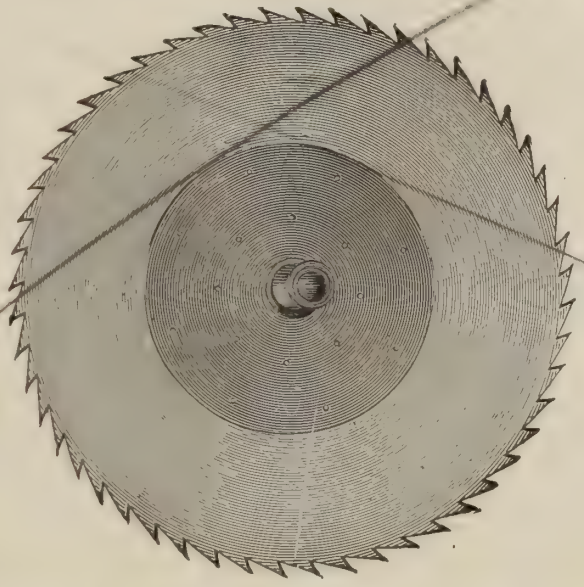

**We make every kind of Saw required in Saw Mills, Planing Mills, Furniture Factories, Piano Factories, Carriage Factories, etc., etc.**

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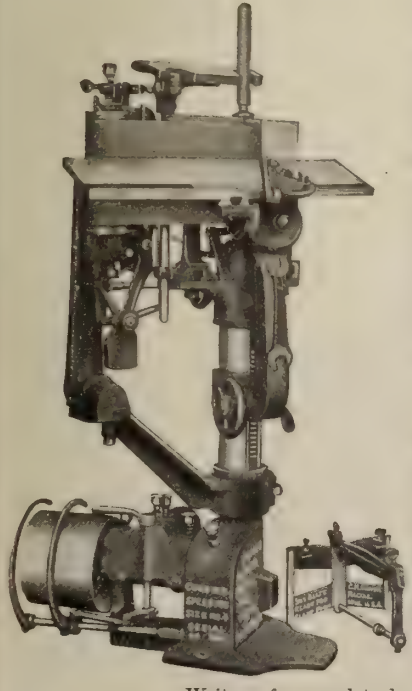

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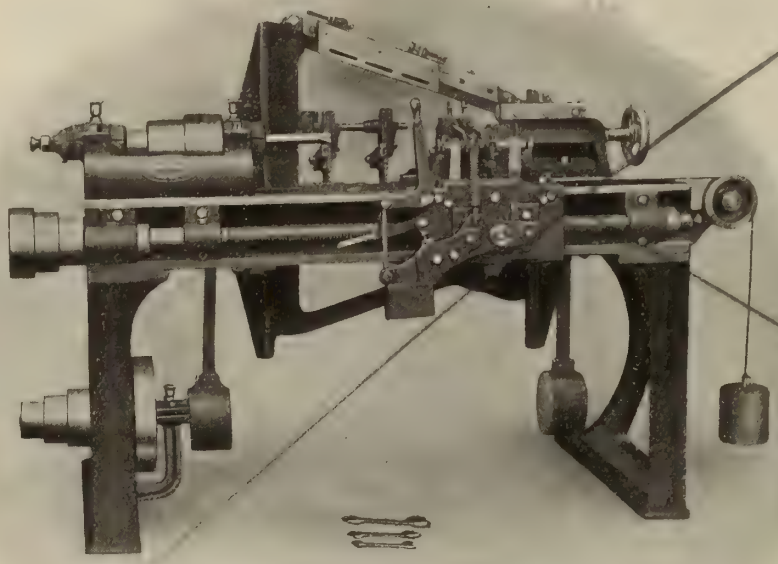

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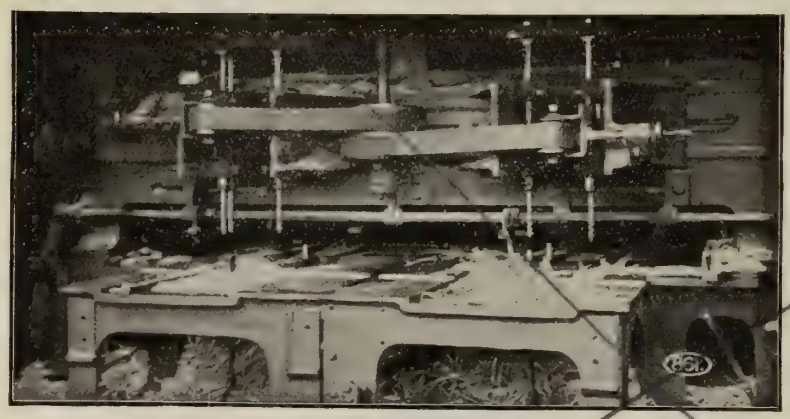

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Upper illustration shows leather belts driving an adzing and boring machine. Trouble was experienced with the belts.

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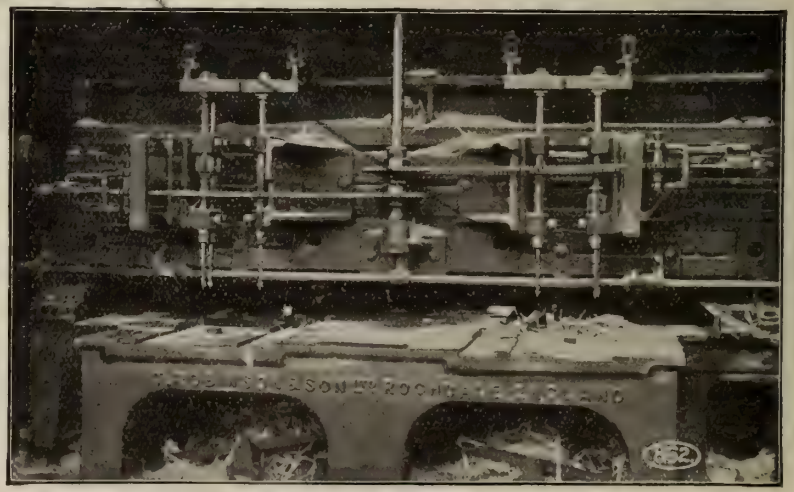

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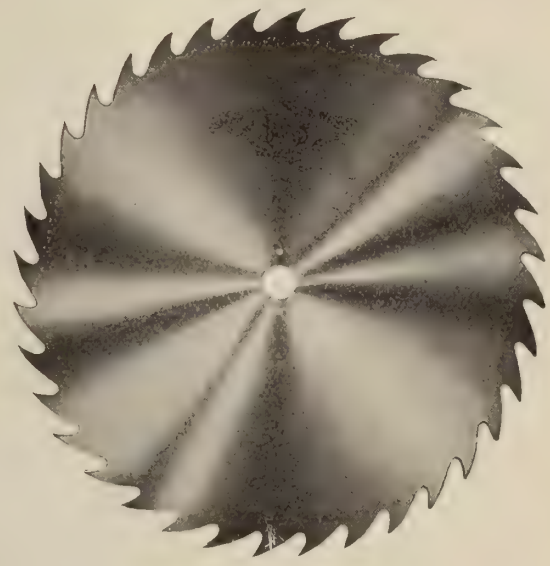

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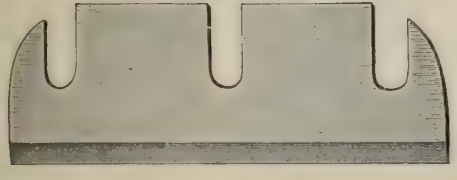

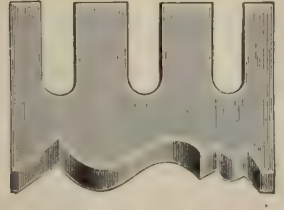

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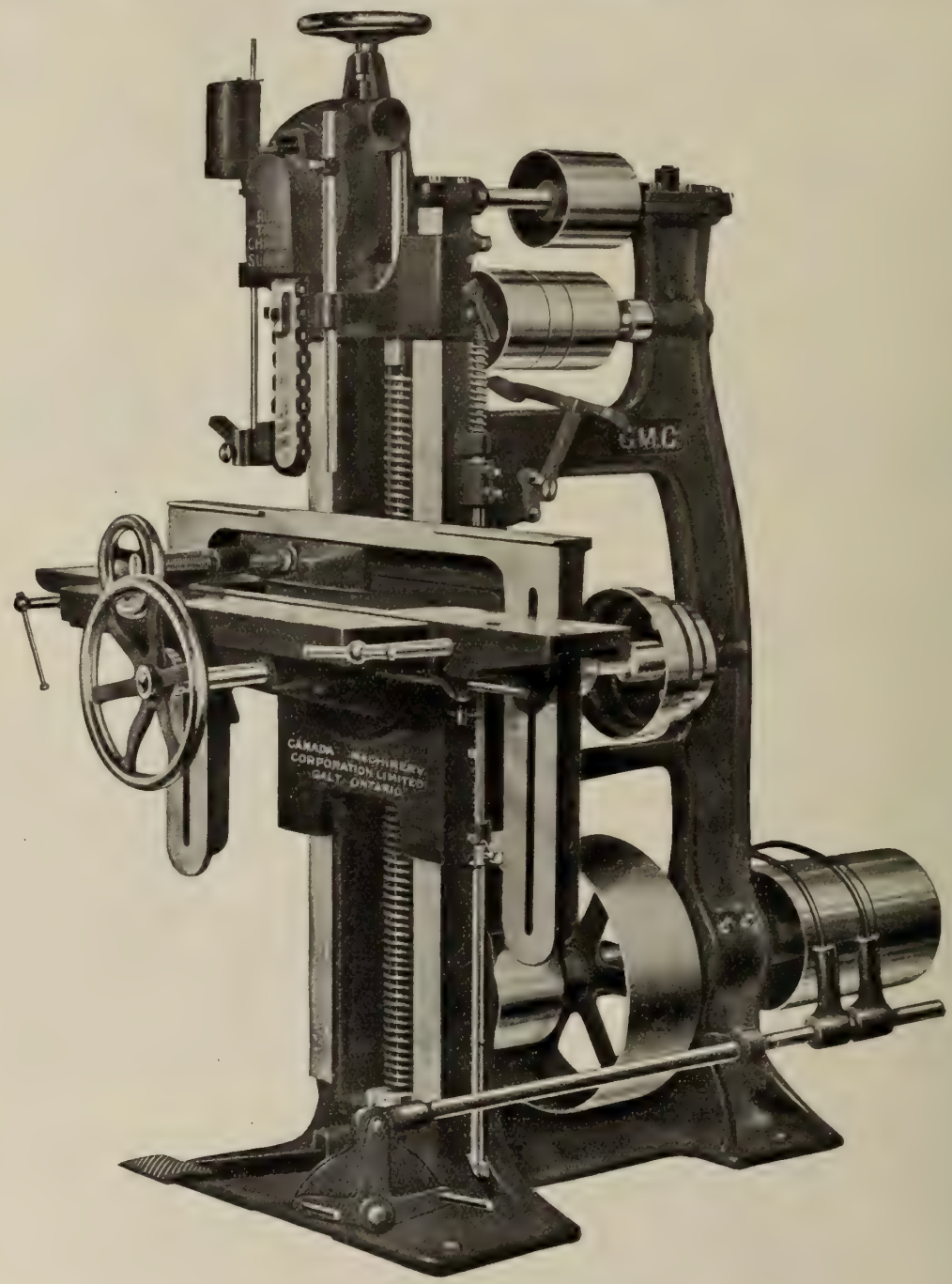


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**Vol. 12 November, 1912 No. 5**


# Business Prospects Good

## But Are There Enough Planing Mills in Canada

Trade conditions in all lines of the woodworking industry continue favorable, and it is pleasing to note that reports from all over the Dominion indicate a busy winter, both in the planing mills, furniture and piano factories. The wagon makers throughout the country are running to capacity, and needless to say the auto-top body makers, as well as carriage builders, are also full up with orders.

### Are There Enough Planing Mills?

An instance that brings out in a striking manner just how busy the planing mills are is related by the manager of a concern interested in supplying knock-down houses to be built from their own plans and specifications. Three months ago this manager started out to visit certain planing mills he had selected as being the most likely ones to supply him with all the woodwork—roughly estimated at one hundred dollars' worth, his idea being to divide this work among six or eight mills situated in the locality most suited for shipping points. He placed his proposition before the proprietor of one of these mills, along with plans, details and cutting bills, and other necessary information, only to be told that he would have to wait at least two weeks for tenders, and no definite promise could be given as to time of delivery in case tenders were accepted. This was all straight go ahead work, too. All the mill man had to do was to get out the material and cut it to lengths, mark and number each piece, then bale it up for shipment. But so busy were all these mills that none of them would promise quick delivery.

This condition of affairs naturally gives rise to the inquiry—are there enough planing mills in Canada to take care of the work now in hand and to keep up to the constantly increasing demand of builders all over Canada.

By a little consideration of how Canada has grown during the past few years, and the marvellous future growth predicted by the country's best men of affairs, it would seem that there are splendid opportunities awaiting the man with a little capital, combined with the necessary experience, to make large profits by locating in some of these new towns that are springing up all over the country. There is not the slightest doubt but what such a man, or company of men, would receive the most liberal terms and the best of treatment from woodworking machine manufacturers, who are always willing to help in promoting enterprise when the interested parties are of the right stamp.

The success of a planing mill business, like any other business, depends on whether the men engaged in it are of the right stamp. There are lots of capable men in Canada who would find it well worth their while to give this matter serious thought. For of all the fields that are open to enterprise and capital, backed by experience and a determination to succeed, the woodworking industry, and especially the planing mill business, offers the best opportunities.

## Does the Old Country Woodworker Make Good in Canada?

If this question had been asked eight or ten years ago the answer would have been a blunt "No." Today the answer would be "Yes," as a rule, "he not only makes good himself, but he sees to it that his children also make good."

Anyone at all conversant with the woodworking trade in Canada must have noticed the large number of old country men who are engaged in the various branches of the industry. You see them on the building keeping the pace set by our own native born and trained workers. In the shop they are just as proficient on both the bench and machine. This is not because they are better mechanics than those who came to Canada up to, say, ten years ago, but is largely due to the fact that he has been posted as to conditions in this country—how we do things here, and why we do them that way. It may all seem strange to him at first, but this posting he has received from friends who preceded him filled him with the determination to study our methods, which he readily adopts. In short, he falls into our ways and soon makes good.

### Some Good Advice

The following is an extract from a letter sent by an old country machine hand who had been in this country less than two years, and is a fair sample of the advice that is being sent to friends in the Old Land. It would be a good thing if there were more of these really heart-to-heart letters sent to old country friends that contemplate crossing to this side. The extract says: "So you think of coming over, and want to know if you could get a job. Yes, you can get a job. No doubt about that at all, but it would depend on yourself as to whether you could hold it. To do so you would have to make good, which means you would have to learn to do Canadian work in a Canadian way. That is, I think, the reason I have got on. To make it plain: you know that old 40-ft. per min. matcher I used to operate—well, I am running a two-hundred foot a minute now, and hardwood at that. It was pretty hard to keep up at first, but I made up my mind that what the other fellows could do I could also do. And so it is all along the line—it is work and more work, but if a man keeps his eyes open, and

does not talk too much, he will soon get on to the way they do things here. Perhaps that is the chief reason, Jim, why I have made a success out here. I found it best to let the other fellow do most of the talking, in the meantime I was learning the new way.

"You ask me how I like this country. I like it fine. I said we have to work out here, but a fellow doesn't mind that, for as a rule the hours are short and the wages, if you can hold your own, are good. There are some fine woodworking plants here, equipped with splendid machinery and when a man gets on to the Canadian system, he would not care to change back to our old and, in most cases, slow methods."

The letter contains other, and just as prudent advice, and reading between the lines the old country friend must have received much real benefit. These inner secrets of this man's success are the secrets of the success of all successful men, to a more or less extent, no matter what their occupation may be. But more particularly is it true of this woodworking trade of our where conditions are constantly changing. It will be remembered that our friend stated in his letter that he was operating a two hundred foot per minute matcher. It may surprise some of our readers to know that a certain machinery firm is now selling a matcher that will feed upwards of three hundred feet per minute. Of course, with an automatic feeding table. Although the makers claim that the machine will do good work at this speed, they do not advise a faster rate than two hundred and twenty feet per minute, as the present means of taking care of the stock as it comes through the machine has not as yet been developed up to the point of taking care of this surprisingly fast speed. But machinery men are turning their attention to this matter, and it is safe to say that the time is not far distant when a device will be brought out that will solve the problem.

Speaking of fast feed matching and flooring machines reminds us that developments have not been confined to that machine alone. Now we have the moulder with over twenty time-savers more than the old, also the automatic dovetail glue jointer, as well as the endless feed glue jointer. In fact, improvements are constantly being made in woodworking machinery that means, to quote our friend again, "that the woodworker must now, more than ever before, keep his eyes open and acquire all the information he possibly can relating to the woodworking trade, and its rapid developments.

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## Are Cabinet Makers Taking Up Carpenter Work?

"Every Spring," said a prominent manufacturer to a representative of the Canadian Woodworker, "a certain number of my bench hands leave me to work on building construction. I am engaged in the manufacture of a very high class of special furniture, and also take contracts for office and store fixtures, including the laying of hardwood floors, etc. Men who have had experience at this class of work make excellent trimmers on interior house work. They demand and get better pay and work shorter hours on the outside than in the shops. This is particularly the case in cities and towns. They hold their outside positions until the fall, when they look for work in such shops and factories as my own."

Continuing his remarks, this man went on to say that while he was quite ready to admit that a man had a perfect right in this free country to seek such work as is most congenial to him, yet many of these men who leave the shop in the spring to work outside flock back to us in the fall. If we happen to be in need of men, as we often are in the fall of the year, we take on a few. Some of these men prove mighty good, and it has been our custom to try and keep them on through the winter months so as to have them in the spring, only to find when the spring comes that the lure of outside work calls them again.

In concluding his remarks our friend made it quite clear that he made no claim to expressing the experience of others, but had no hesitation whatever in saying that he has great difficulty in holding enough men during the summer months.

In order to get the opinion of the men, and to hear what they say is the reason some men prefer outside to inside work, several were questioned. Various reasons were given which lead to the conclusion that it is not the difference in wages alone that influences most men to work outside. One man expressed it by saying there was a certain freedom on a building that you do not enjoy in the shop; not that the work was any harder, as the average man can work harder and handle heavier material on a building and feel less fatigued than he would in a shop. It is true he wears out more clothes and tools on a building in six months than he would in a year in a shop, so that in a measure offsets the difference in wages. Other men appealed to said that neither work in cabinet or carpenter shops appealed to them just now when outside construction work is so plentiful, and that constituted the answer to the whole question.

Building methods have undergone some big changes in Canada during the past five or six years, changes that have done away with that uncertain feeling that formerly existed in the minds of the woodworker, and which were the cause of his looking about

The time was—and not so long ago, either—when it was the custom among contractors to make every effort to close in their jobs along about the end of November, when actual outside construction work was supposed to cease for the winter. Not so nowadays, as any one may have noticed that work goes on the year round without interruption, except perhaps for a few days of very severe weather. These changed conditions in building methods are more apparent in the larger towns and cities where big office and bank buildings are going up, to say nothing of the large apartment houses. In most instances the sum paid for the land on which these buildings are being erected was tremendous. So the owner urges the brick and concrete contractor to keep busy, and unless, as already stated, the weather becomes very severe work keeps going all winter.

The contractor for the carpenter work is keeping pace also with these changing conditions. He puts up a shop right on the construction ground into which he sometimes puts a few woodworking machines which he runs either by electric power or gasoline. This enables him to keep quite a number of men at work making frames and getting out other woodwork that will be required as the brick work proceeds.

The up-to-date contractor of outside construction work considers the comfort of his men, these temporary workshops being kept warm and made as good a place to work in as a man could wish for. Usually he engages the services of a good general machine hand who keeps the saws in condition and the machines properly adjusted, as well as doing the most particular part of the work. Men who have tried this

method of doing a certain amount of machine work right on the job claim two great advantages for it: the one being that woodworking machinery can be had at such a price to-day that it is simply foolishness to do any more hand work than is absolutely necessary. The other advantage, and perhaps the greater, is that it does away with the inconvienience of waiting for material from the mill.

## Taking Old Buildings Apart

**Skilled Help Required**

Not so many years ago, when a man bought land on which he intended putting up a new building and on which there happened to be a house that was in the way, he would follow either one of the customs that prevailed at the time. The most popular method was to move the house to another lot, then remodel it and make a good profit on the venture. This is often done up to the present day. Sometimes shade trees and overhead wires prevent the carrying out of this plan, then the building has to be wrecked, or in other words, torn down. In the years gone by this was done with little or no regard to the saving of the material for future use, and it was not at all unusual to see a sign up which read, "All the wood and lumber in this pile may be taken away free." It might be well to mention here that this particular pile contained all the shingles, laths, and most of the studding, with a big share of the boards and siding. In those days it was not considered worth while, even though wages were much lower then than to-day, to spend time in saving old lumber. Not so to-day—as was witnessed by a woodworker man who saw a gang of men not wrecking, but carefully taking a small house apart and placing each kind of material in separate piles to be used in a new and modern building to be erected in place of the old one.

### The Method Adopted

First the window and door frames were removed and placed under temporary cover. Then the shingles, which had done service for less than two years, were taken off. This was done by punching the nails through. These shingles had been treated to a coat of stain and it was estimated that at least eighty per cent. of them could be used again. The same with the boards and joist; in fact the owner made the statement that he expected to use two-thirds of the old lumber, and all of the window and outside door frames, including the glass. Of course all the old bricks can be used in the new building. .

The writer, who has seen a good many buildings torn down, was particularly interested in watching these men, who evidently understood their business, and is convinced that it pays to hire a certain number of carpenters. They know how to build a house, therefore they know best how to take it apart with the least damage to the material.

In these days of high priced building material of every description, too little care is given to this class of work. How often does one see a gang of unskilled men pulling down houses and other buildings, when so much of the material might be used to good advantage again. For surely a saving of two-thirds of all the old material is a good return for the time and money spent on a job of this kind.

Editor's Note—The house in question was a six-room cottage, frame and plastered, built about the year 1882.

## Birch for Wood Strains

Wood Strains are used for insulators in overhead electric line construction. They consist of pieces of wood ranging from eight inches to several feet in length and from one inch to four or five inches in diameter at their smallest point. Malleable iron lugs are wedged onto the ends of these sticks so that the wood is subjected to an endwise pull. The wood commonly used is hard or sugar maple which is first impregnated with paraffine and then coated with a heavy oil paint.

Sometimes it is not easy to get the right quality of sugar maple at a reasonable price and therefore some of the eastern electrical companies are beginning to use black and yellow birch for this purpose. While black (or cherry) birch is superior to yellow birch, yet both will make good wood-strain material. There is almost no danger of any wood being pulled in two lengthwise when made up as wood strains are. The whole question is concerned with the attachment of the lugs to prevent them slipping off the ends. When this happens the failure is due partly to compression but more particularly to longitudinal shear. By compression is meant that the wood tends to squeeze down so as to slip through; by longitudinal shear, that an outer ring of wood would be pulled off. In reality both occur but the latter is the only one of importance to be considered when woods like maple or birch are used.

The ability of any wood to resist pulling in two in direction of its fibres is many times greater than its resistance to shear. A wood strain of black birch one inch in diameter at its smallest portion would require a load of over 20,000 pounds to cause it to pull in two. As strains of this size are required to stand a commercial test of 3,500 pounds, it is evident that birch is strong enough to resist any tensile stress to which in practice it will ever be subjected. The important point in using a wood softer than maple is to increase the efficiency of the attachments. This can be done by increasing the length of the part inclosed by the lugs.

After wood strains have been in use for some time, the paints wear off leaving the wood protected only by the paraffine. The question then of the durability of the wood under these conditions is to be considered, but there is no reason to believe that birch is not the equal of maple in this respect. Moreover, difficulty of this kind could be overcome by impregnating the wood with some antiseptic oil instead of paraffine.

## The Way to Place Figures on a Drawing

At a recent meeting of the American Society of Engineer Draughtsmen held in the Engineering Societies Building in West 39th Street, New York City, Professor Charles W. Weick, of Columbia University, gave a most interesting lecture on "Practical Perspective" which arouse much interest and drew out many subsequent questions.

One of the questions asked through the "Question Box" was, Whirh is the better way to place figures on a drawing—perpendicular to the bottom of the drawing, or perpendicular to the dimension line?

This created considerable discussion and the concensus of opinion seemed to carry the view that perpenditcular to the dimension line is the popular method of placing the figures.

# Craftsman Cement Cottage

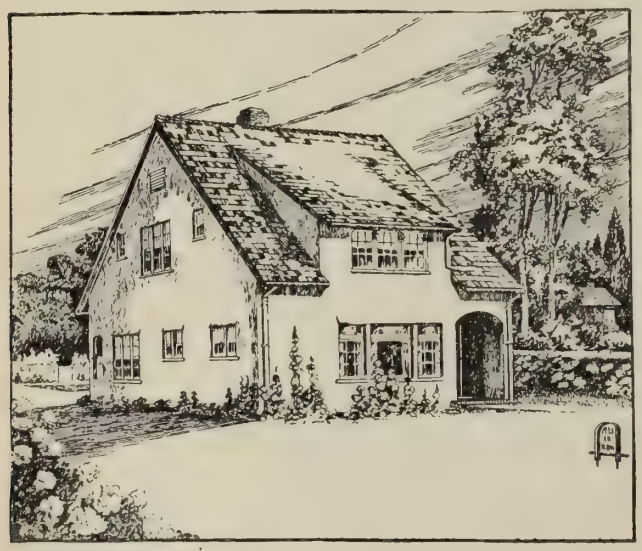
## For Narrow City or Suburban Lot

This house was designed for a narrow lot, and being only a storey and a half high, has a long, low interesting roof line broken with flat dormers, front and rear. The groups of windows are most interesting, all being casement except the large plate glass picture window in the front group, which is stationary. No front verandah has been provided; but the entry is recessed, and the graceful arch emphasizes the cement construction.

The interior of this house has been arranged with

**Living room of cottage showing fireplace and arrangement of stairway**

the idea of economy and space-saving, utilizing all floor space and eliminating halls. The entry is recessed, the vestibule eliminated; on entering, you find the hall space has been included in the living room, with an open stair conveniently located near the entrance. A partition dividing dining room from the library is only suggested—an arrangement which permits of a vista from the living room through the dining room

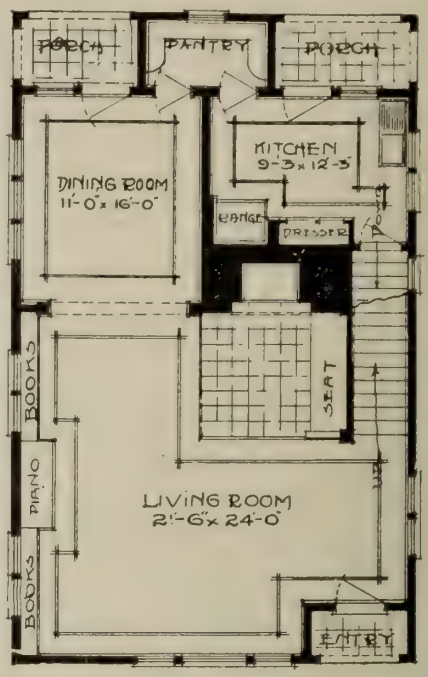


**Craftsman Cement Cottage**

and across the rear porch, giving at once a sense of highness and generousness. Open bookshelves serve to break up the long wall of the living room, and a space has been left for the piano, which will give it an appearance of being built-in, a part of things permanent.

The fireplace is large and generous, and with the inviting seat nearby becomes at once the centre of interest. The fireplace is built of common hard-burned brick and is plastered.

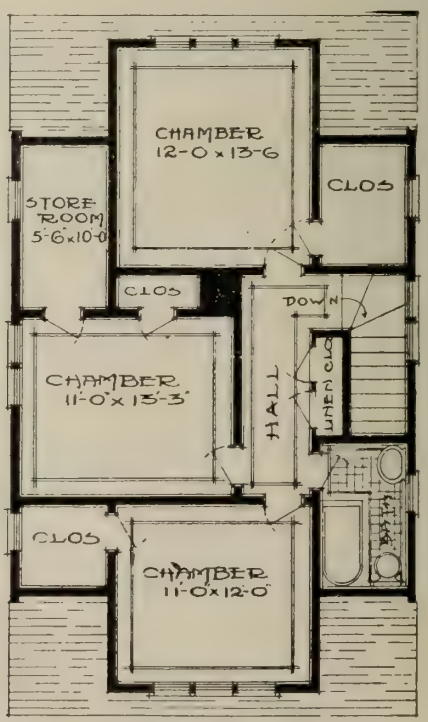
To introduce some color, tile porcelain is used for the inside panel, on which the hammered copper hood is placed. The warm air registers in this case are placed on either side, and these, too, may be made of




**First Floor Plan**

copper. The house is completely heated and ventilated with the Craftsman fireplace furnace at a complete cost of installation of about $250.

The second floor is conveniently arranged with




**Second Floor Plan**

three bedrooms, ample closets and a large storeroom; these closets, of course, are built under the roof and are not full height except at the front.

# Woodworking Machinery and Practice

### Standard or Special Dimensions?

A sawmill man who has made a big reputation for the production of quartered oak lumber has come to a conclusion which will be used in operating his plant hereafter. It is to cut as few sizes of lumber as possible. As a matter of fact he intends to confine the manufacture of oak to inch stock, except for special purposes. That is to say, if he has been shipping steadily to a particular customer 6/4 stock, he will continue to manufacture it for that trade; but will not cut and pile it, in the regular course of business, without having a definite outlet for it.

"I have found by experience," he said recently, "that while I have been cutting a lot of lumber, and have been producing no more than the average number of thicknesses, I have tended to accumulate a lot of odds and ends which I had little opportunity to move. For example, in making up a stock-sheet recently I found that I had half a million feet of plain oak, yet it was so badly split up, according to thisknesses as well as grades and lengths, that I had only a few carloads of any one item ready to ship. I found on analysis of the proposition that I have been tying up a lot of money by cutting a variety of sizes, since I scatter my efforts over too wide a field. Consequently I have determined to make but one kind of lumber hereafter, so that I can clean up my stocks with less difficulty than when the mill is cutting random thicknesses, without any definite policy on this score."

The question of running a mill steadily on inch lumber, for example, against a variety of thicknesses, is an old one, and much has been said on the subject. At the same time, the fact that mill-men are arriving at conclusions such as that referred to ,after having been hammering away at the proposition for a good many years, seems to indicate that there is still a marked lack of unanimity as to the best plan. There are some well-qualified mill operators who assert that the only safe rule to follow is to produce whatever thickness is required in order to get the best results out of the log, whether this be half-inch or three-inch stock. Their point is that the quality of the lumber should not be sacrificed to a policy of the concern as to the thicknesses it wants to handle, and that more will be lost in the mill in endeavoring to meet this arbitrary standard as to thickness, than will be gained at the other end of the operation by convenience in handling.

As a matter of fact, it depends largely upon the size of the mill which is under consideration. A big plant cutting several hundred thousand feet daily, can accumulate enough lumber of all grades and sizes, probably, to make it worth while to produce lumber as the character of the log suggests; in other words, to get all out of the log there is in it, no matter whether this requires cutting one thickness or half a dozen. The yard which is carrying millions of feet of all descriptions is big enough to absorb a well-distributed cut without difficulty.

On the other hand, it is not unusual to find an extremely large mill cutting only on dimension as to thickness, and usually that is inch. The obvious reason is that the operator wants to move his stock quickly, and believes that he can make more by rapid handling than by risking a tie-up of his capital through the manufacture of sizes which are not in general demand, and which cannot be moved as expeditiously as inch and some other stock. However, it can probably be laid down as a fact that the big mill can cut a variety of sizezs to better advantage than can the small plant, and that the latter, unless its opportunities for moving its stocks are exceptionally good, will usually find it worth while to confine its attention to a few standard thicknesses.

There is a certain advantage in being known as the producer of one thickness of lumber, just as there is in establishing a reputation as "headquarters" for all dimensions of a certain kind. There is one mill which advertises that it constantly has on hand immense stocks of five-eight-inch poplar. There is no doubt that this advertisement has made it likely that when a buyer is in the market for that particular kind of lumber, he will think of the producer whose name is identified with it. As long as production is centered along that line, there is a definite gain in linking up the demand with the mill in this way, although it is conceivable that if it were found advisable to change the policy of the concern and manufacture some other dimension instead of five-eight inch, it might prove difficult to get away from the old reputation as to producing the latter.

A consideration which applies to everybody in determining upon the thickness to cut is the time required to market thick stock as compared with inch or thinner. A sawmill man of long experience both in manufacturing and selling recently described an experience of his along this line.

"I had an idea that there ought to be a good market for thick red oak," he said, "and I had the mill cut several thousand feet of this material. It occurred to me that I could get a high enough price for it to justify the greater exertion which would be required to move it as compared with thinner stock. However, I realized later on that it would require several months longer for this lumber to dry and get in condition for the market than if I had cut inch stock, and when I figured the interest on the investment for that period I learned that I should have to get a pretty stiff price in order to take care of that feature. By the time the lumber was ready to ship, I had discovered that buyers didn't seem to want the particular dimension I had cut, and that while I could sell my inch red oak without difficulty, the demand for 6/4 and 8/4 seemed to have gone to pieces. To make a long story short, the lumber remained in the yard for fourteen months before I was able to sell it—and the price I got for it was by no means a premium figure, and did not remunerate me for the expense of carrying the stock for that length of time. I have decided to cut inch for the most part hereafter."

This point is one that is worth taking into account when the proposition is being discussed. In the case of quartered oak, for example, 5/4 and 6/4 stock is worth from $2 to $2.50 a thousand more than inch. The question is, does this increase more than make up for the increased handling charges which are necessary on account of the longer period required for drying purposes, and in consideration of the admittedly greater difficulty of marketing? While it can be retorted that there is much more inch stock being manufactured than any other kind and that there are consumers of the other dimensions, especially the

extremely thick stock, who are willing to pay good prices for it, the point is that inch is a staple, and can be sold without great difficulty, and that the other sizes are in a way specialties, and cannot be disposed of at a moment's notice.

The technical sawmill man, who is thinking chiefly of the proposition of making as good lumber as the log will produce, may not be willing to accept the dictum that he is to cut a given dimension without regard to the condition of the log on the carriage. He may point out that it is almost criminal to manufacture No. 1 common when by changing the thickness firsts and seconds lumber could be produced. His point is well taken, but the manufacturing of lumber is but one of the many factors entering into the business, and is not always the controlling one.

And it must be remembered, from a practical standpoint, that it is not always easy to coach sawyers as to the exercise of judgment as to what thickness to cut; and that the production will be kept more nearly up to standard if the man at the saw has but one or two dimensions in mind, and it not trying to figure every minute what thickness should be used to keep the grade of the lumber up to the highest possible point. This may sound like a slip-shod method, but in most cases it is the best one for the sawmill operator to follow.—Hardwood Record

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### Hints for Adjustments for Circular Saws

Examine saw arbor for end play which should be taken up to 1/16-in. by a good set collar. Use a small lever under either end of the arbor to see if boxing is firmly bolted to frame and if arbor is fitting snugly in box; if not same should be remedied. Try the straight edge on face of tight and loose saw collars to see if there are any lumps, or if the collars are concave or convex. Lumps can usually be turned off the tight collar very satisfactorily by breaking a heavy file, say 10-in. M.B., and using the sharp broken end; first seeing that the mandrel is adjusted with all end play taken out and arranging a block solid to rest the file on, as with any other ordinary process of turning in ordinary wood work. After the lumps have been cut off hold the file against the face of collar to finish smoothly. Draw file lose collar from different angles for leveling face and removing improper surface conditions.

When putting the saw on notice when collars tighten that saw is not drawn to or from the log in a cupped or dish form. If it is, collars should be dressed so saw will stand straight or fall either way with the same ease.

To be sure you have the proper lead in mandrel put a board 5-in. by 1-in. at one end and 2-in. by 1-in. at the other, sufficiently seasoned and stiff to hold its position on saw arbor and tighten saw collars on it tight and then turn forward, letting it down as near to track as possible without touching and measure from a centre point in the end of same to centre of tee rail on track. Then turn mandrel backward to get similar results toward rear end of track. You should have at least ⅛-in. in 20 feet, and some mills often work well with more to suit the condition of saw which may not be fitted up perfectly or flat. Use a strip as long as can be turned over in your mill up to 10 feet long. Be sure not to touch the strip or allow it to strike against anything while making the test, as it would be very easy to throw you off on the correctness of your work.

In connection with the above it would be well to examine your carriage to see if you have any end play on axles or carriage trucks, which should all be taken out.

In testing for lead, with block the necessary thickness, if board comes in contact with skids or rolls offset at mandrel, you will find many loose collars on mandrels turned out on the face, leaving a circle ½-in. to ¾-in. wide face at outside, and, if you will examine carefully when tightening up on this collar if it is 6-in. or larger in diameter, that the pressure of the nut in the centre springs the collar (unless it is extremely thick) giving a convex effect on the face. By pouring water or oil on the face of collar before putting it on you can see how open the collar is from the saw by pulling the saw back and forth and notice the oil squash out from between the collar and the saw. Should you have a collar in this condition it would be a valuable investment to get a new one made on such principles as would overcome the difficulty.

Saw arbors should be level, also carriage track throughout the entire length. A simple method of testing carriage for level is to hold spirit level on top of headblock while carriage is run from end to end of track and notice variations; however, this is not as correct as levelling on top of track at close intervals. In doing this note carefully that foundations under track are solid, as they might show level when empty but with heavy dogs would give down if not solid.

And, let it be noted particularly, it is with large logs when most necessary to have track straight, level and solid because of the height of the cut causing greater variations near the top and thereby spoiling the most valuable timber.

To line track stretch a fine wire on two spikes driven three inches from either end of the tee rail at short intervals. Should the track be found much out of line before beginning to saw, after having lined track, examine head blocks to see how near they run to saw, as the adjustment of tee rail may have been toward saw near centre and cause blocks to hit saw.

Quite frequently the governors on engines are not run at speed intended and at great loss to operator. Usually the speed of governor is to be found plainly marked on it. For a governor to be overspeeded means to carry the saw through log, or nearly so, on momentum which decreases in speed rapidly from the beginning, causing rim of saw to contract and conforming to the principles of tension becomes more and more toward a saucer shape and running either in or out of log, mostly out, thereby producing friction by log rubbing against centre of saw, causing expansion by heat generated which means putting the saw in a conditions of still higher tension and making matters worse. Continuing this fractures saws over collar or bursts when metal in saw is not tough.

To correct this governor reduce its speed to that which it was built to run, by increasing size of pulley on governor stem as per correct speed calculations and speed of engine can be maintained.

Rule for making above calculation: Multiply speed of engine by size in inches of pulley or shaft driving governor belt, and divide by size of pulley in inches on governor shaft.

| | | |
|---|---|---|
| Example: | Speed of engine, | 180 rev. |
| | Diameter driver of governor, | 6 inches |
| | | 1080 |

Size pulley on gov. shaft 9-in.)1080(120, equals speed of governor.

If governor is running too slow speed up by reducing size of pulley on governor shaft.

This is a very vital point in affecting net profits of millmen. Instances have been known where correcting governor adjustment increased cut enough to pay expenses of operating mill.—Simonds.

### Mechanical Supervision of Machines

A device for checking the performance of machines has been brought out by the National Machine Recorder Company, Chicago, Ill.

It makes a continuous record of what is done so far as the starting, stopping and change of speed are concerned. No working record is made unless the tools are actually cutting, the absence of the line thus showing that the machine was running idle though in operation.

There is also an adjustable time switch to continuously indicate whether or not an operator takes longer than the allotted time of operation. Furthermore, the machine records loss of time due to failure or breakdown of the machinery which is not to be charged against the workman.

Some of the results brought to light by these recorders are found very suggestive and useful. It was soon seen that in one woodworking plant considerable time was lost every day in changing knives on molders, etc. This trouble was largely remedied by rearranging the orders and allowing each machine to turn out as far as practicable only one style of molding. It is claimed that in the one department the saving thus made amounted to 45 hours per day on 15 machines.

Operatives of machines were also noted doing work that was not favorable to the continuous output of the stickers and planers. It occasionally happened that the machines would be idle for long periods while lumber was being trucked to and from the machines by those who could otherwise have been more profitably engaged in the machine woodworking they were expected to do and for the disturbing factor of the delay caused by the necessary replacement and removal of the stock they were busy upon.

The recorders certified that two hours a day were lost on each machine from this cause. Three truckers were promptly detailed to the job and they now keep the twenty machines regularly supplied with material and constantly in action.

The improper operation of the machine is also detected by the recorder where boards do not follow each other closely. Space left between one board and another is not only recorded as loss in efficiency but, based on the findings of the device, a plan was adopted of paying for the work on a productive-hour system. This system is said to have resulted not only in a continuous run of lumber through the machines, but to go farther and greatly increase the former capacity because of this tendency to get all that could be got from the equipment.

An interesting use of the recorders is reported from a tag-manufacturing plant where the plan of paying wages was revised in the hope that it would result in getting rid of certain obstacles soon found in the operation of the machinery. Much time was lost in repairs and in setting up the machines for new work and in waiting for stock. After due consideration of the problem disclosed by the recorders, the workmen were paid at the rate of 32 cents per hour for the actual machine production time shown by the respective recorders, and only 18 cents per hour for what the device would certify as "idle" time.

This method is said to have solved the former difficulties and that now the production has increased forty per cent. on every machine.

### Fire Risk in Woodworking Plants

The great inflammability of materials and products in the woodworking plant, together with the inevitable collection of dust and sawdust liable to flash into flames from spontaneous combustion, or the careless use of matches, makes this type of property an extremely hazardous one from the fire point of view. Insurance rates of eight per cent. per annum are not at all uncommon, and a rate as high as this is justified in many of these properties.

Elimination of fire risk is of extreme importance, as it would result not only in absense of danger from fire, but a very material decrease in the cost of insurance. The placing of an engine and boiler room close to the plant increases the fire risk, particularly as inflammable dust is always carried from the plant into the engine room by the heavy belt and is liable to cause an explosive fire. Electric drive does away with this inflammable dust, and if induction motors are used also eliminates danger of sparking. The savings affected in insurance premiums alone is sometimes sufficient to warrant the erection and electric equipment of new fireproof buildings.

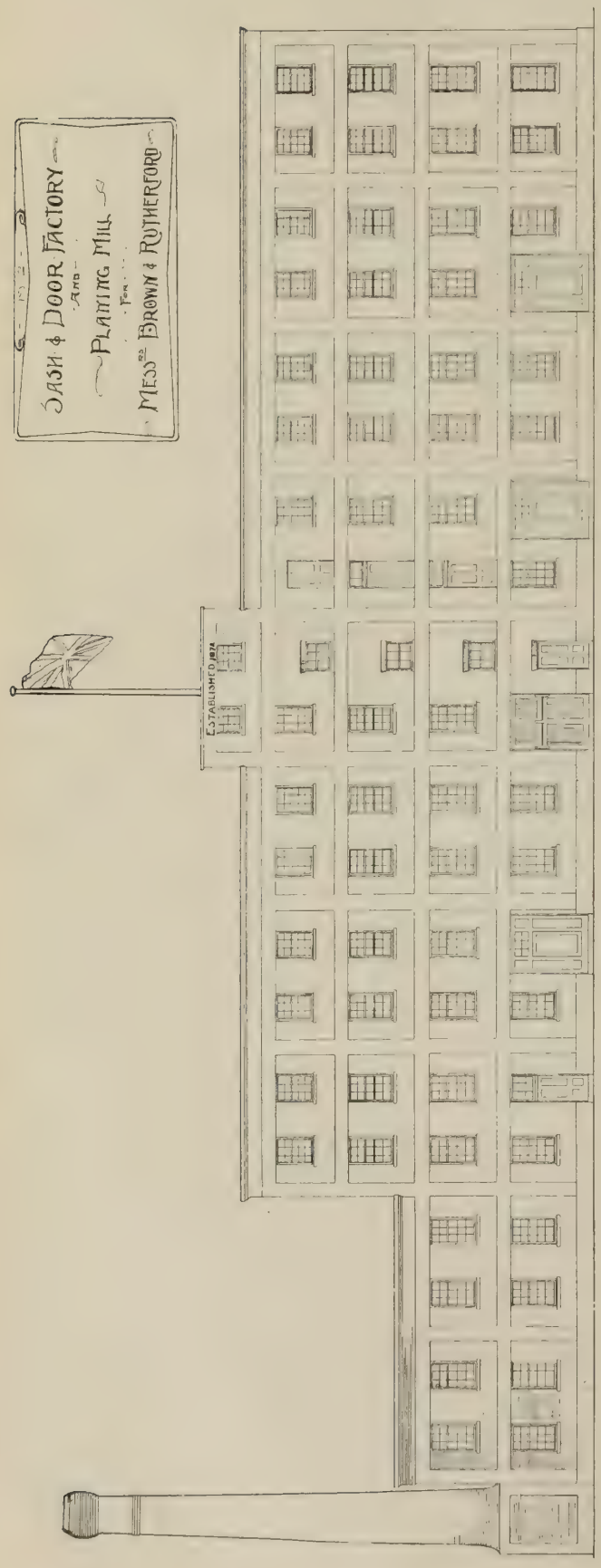
This is so, however, only if the buildings are adequately protected by a complete system of automatic sprinklers. Recent figures on the cost of cheap wooden buildings with engine drive as compared with the best fireproof construction driven electrically and protected by automatic sprinklers, show that for a certain plant the cost of the former, including all machinery, will represent $28,800, as against $38,300 for the latter. The difference in insurance premiums, however, amounts to more than $2,000 a year in favor of the more expensive plant. It is seen that this difference is more than twenty per cent. dividend upon the difference in cost, and that the additional expenditure or first cost is more than justified on every ground.

### Some More Hints on Babbitting

The following method has been frequently used to good advantage in babbitting shafting bearings, and the power user may add it to his collection of ways and means of keeping his equipment in good running order; the box and shaft are heated until they are too warm to handle with bare hands, the shaft at point of contact with the bearing is then painted with a coat of white lead or else is wrapped with a layer or two of paper. The shaft is placed in position, the ends of box being sealed with clay and provision made for the escape of air. The babbit should be heated until a pine stick is charred by dipping, and when at that consistency it is poured and as it commences to set the shaft is turned in the box, thus preventing the metal from adhering to it. It will be found that this will form a good tight bearing and at the same time allow the shaft to resolve freely without heating.

# The Last Word in Woodworking Plants

**Brown & Rutherford a Thoroughly Fireproof Factory at Winnipeg With Many New Ideas**




A distinctive departure in the building of woodworking plants is marked by the erection of a fine new structure by Brown & Rutherford, of Winnipeg. The plant formerly owned by this concern was destroyed by fire last spring. The whole plant consisted entirely of wooden buildings of the type so generally used as factories by the woodworkers and sash and door men of Western Canada. The rates of insurance on these wooden buildings has been so extremely high that it was practically prohibitive. Seven per cent. was the usual rate charged by the insurance companies on a risk of this nature, such a rate making it practically impossible for an ordinary business to produce dividends after paying so high for insurance. A number of firms in the business prefer to carry their own risk, all or in part. In the case of Brown & Rutherford, the procedure resulted in a heavy loss.

The firm has, after due consideration, decided that the wisest course is to erect a building that will be entirely fireproof. They accordingly have had plans prepared and have awarded a contract for the erection of a reinforced concrete building of four storeys. This factory, when completed, will be perhaps the most up-to-date structure of its kind in the West. Every precaution has been taken to prevent the risk of fire, and it might be said that when business is started in this new factory, this risk will practically be eliminated.

### The Fire-proofing Measures

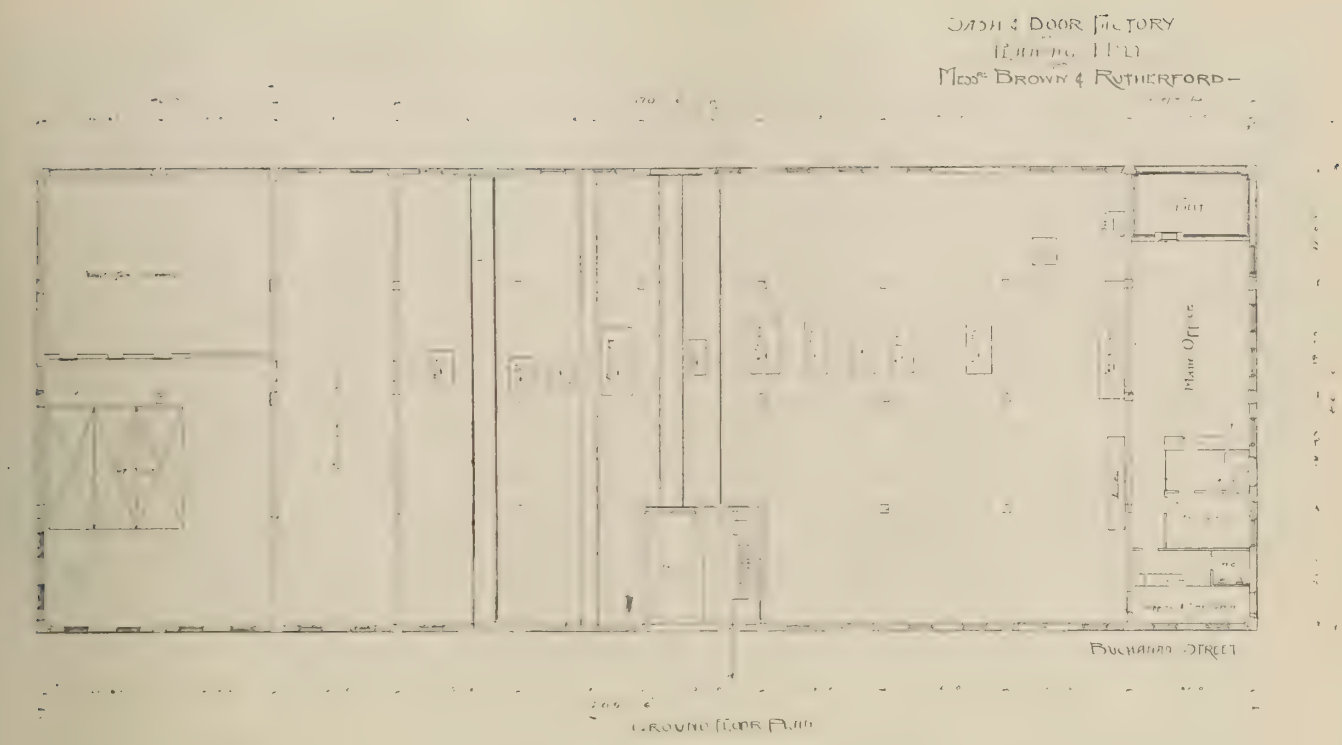
The structure itself will be a very fine one, of imposing appearance, well lighted, and well finished on the outside. Among the principal fire-proofing measures followed in the construction of this building might be mentioned the following: solid concrete stairs, iron window frames, wired glass, sprinkler system on all floors, blower system for the gathering up of all sawdust and other refuse, entire absence of wood in the construction of the building.

The size of the building is 210 feet by 80 feet, four storeys, 50 feet high. It is being built on a column system, the design of the columns being square, the capital also being square and covering a comparatively wide area at the top. These columns are twenty-one in number. Those in the first and second storeys are 22 inches square, those in the third are 20 inches and those in the fourth are 18 inches. The footings are very heavy, and are especially designed with a view to carrying the heavy machinery. These footings are 4 feet wide with solid monoliths, 10 feet square, for the bases of the columns.

The walls will be faced outside with yellow brick, and inside with hollow brick. The front of the building, which faces on Sutherland avenue, will be an exception; with a view to obtaining a more effective appearance this portion of the building has been faced with red pressed brick. The walls will be 13 inches thick. The four floor slabs will be 8 inches thick. The smoke-stack will be of solid concrete, 95 feet high.

### New Features of Interest

The sprinkler system which will be installed in the new plant is of a modern type. It is used without the water tower which is generally erected in con-




nection with systems of this kind. Large tanks will be installed on the top floor and these will be kept full of water under pressure continually.

The waste, shavings, sawdust and other refuse will be collected by means of a blower system and conveyed to a large vault in the northwest corner of the building from which it will be fed to the furnaces. This vault extends to the full height of the first two storeys. The fuel thus consumed is used to develop the steam, which provides the electricity to drive and light the plant. The steam is made in a battery of three large boilers which drive two Corliss engines with a capacity of 135 h.p. each. The electric generators are direct connected to these engines. The machines are driven by individual motors. The great economy of this plan is apparent. Under ordinary circumstances the disposing of the waste matter in a factory of this kind is in itself a source of expense. In the new Brown & Rutherford factory this expense is eliminated and the waste at the same time is used to generate power and light, the providing of which does away with the necessity of buying the power and thus effects a most important saving.

### Preventing Condensation

One of the great sources of trouble in the ordinary wood-working establishment is that experienced from the condensation of the steam and the resulting dropping of water from the roof and dampness. This is always a source of more or less danger in the finishing of the higher classes of woods. This element is being overcome in the construction of the Brown & Rutherford factory. The walls are faced on the inside with hollow brick, the air-space being of sufficient size to eliminate the gathering of water on the walls. A still more important measure is being taken in connection with the roof, which will be double, there being the eight inch concrete slab with an air-space above and ventilators leading from this air-space.

The main building and the dry-kiln in the rear will be heated by hot air and condensed steam. The exhaust from the engine will be used to heat the top floors. The water from the heating system is caught and brought back to the boilers and again used to make steam. This plan is of great advantage in connection with the hard water such as is available in Winnipeg; the process of condensation eliminates almost entirely the elements which cause the scale which is injurious to machinery and which makes frequent cleaning of boilers and pipes an absolute necessity.

An elevator will be placed in the building. The system will consist of one large lift, the shaft being 8 feet by 20 feet. The roof will be felt and gravel. The temporary building now being used as a factory and situated on the other side of the street, will be later used as a warehouse. The ground floor of the main building will be devoted to the moulding machines, surfacers, band resaw and the other machinery of a similar nature. The office will occupy the end of the building facing on Sutherland avenue and will extend across the entire front of the building, being 80 feet long and 20 feet wide. The second floor will be used for the manufacture of windows and doors, the third floor for frames and larger stock and the top floor for cabinet work.

Pratt & Ross, of Winnipeg, are the architects of the building. Work on the new factory was commenced on July 9th and will, it is expected, be completed about October 30th. Published by courtesy of the Western Canada Contractor.

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### Lumber Mill Destroyed

Fire destroyed the Wattsburg Lumber Company's mill at Procter, B.C., and part of the stock of lumber in the yards, according to a telegram from A. E. Watts, which was received in Nelson.

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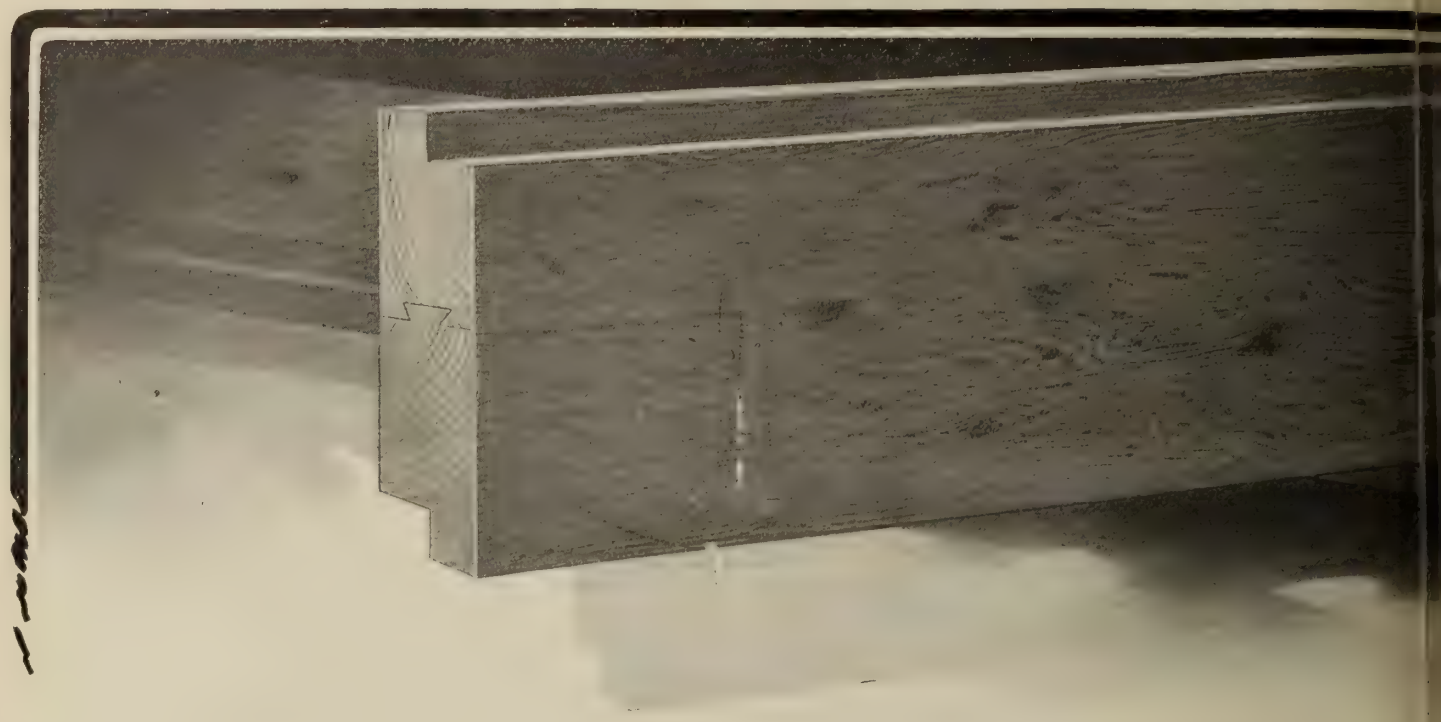
It's well enough to hope, but don't loaf on the job while doing it.



# 3 in., and 4 in. COMMON LUMBER Cor

## The Latest and Most Modern Method for Obta

### A cost of 75c. per thousand feet board measu

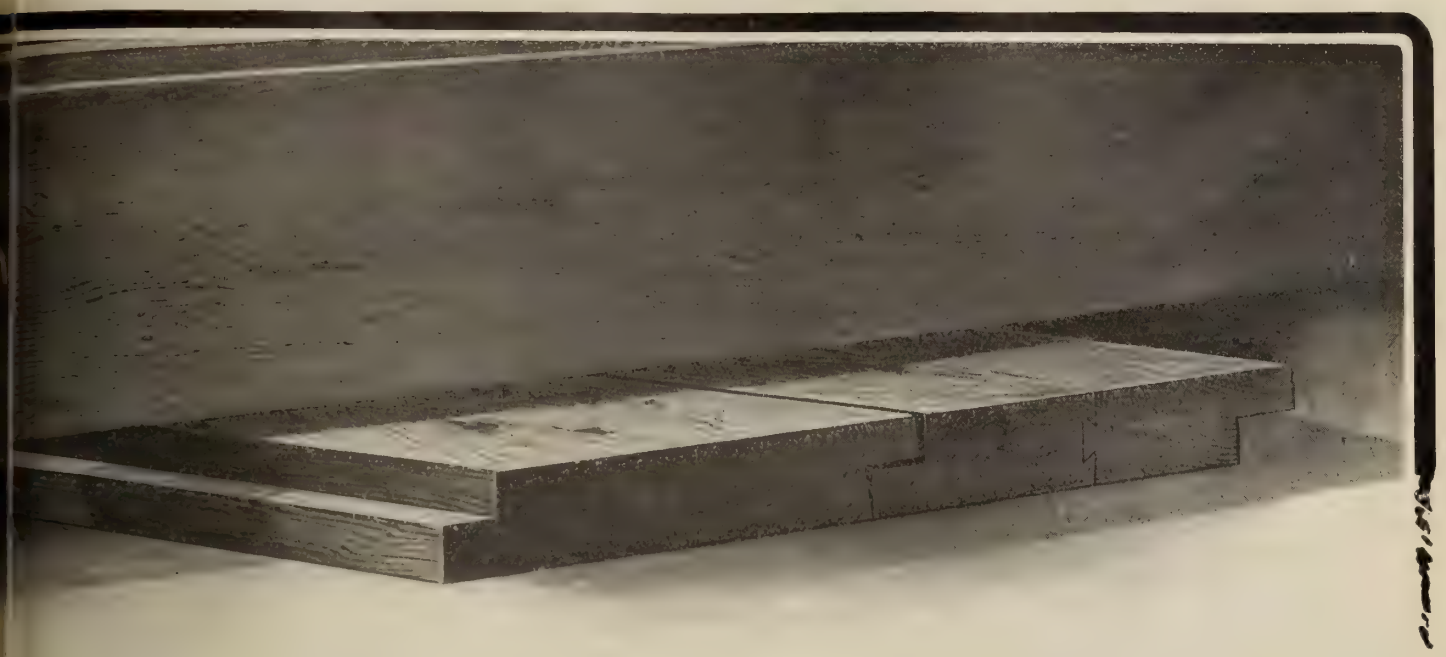
In many sections of the country, East and West, in spite of the utmost care in sawing, there accumu lates a vast amount of common lumber 3-in., 4-in. and even 6-in. wide which at times it is almost impossibl to move without cutting the price several dollars per thousand. Most lumber manufacturers would b satisfied were it possible to obtain from their narrow width common lumber the actual cost and in mos instances in order to move the accumulated stock quickly they are compelled to sacrifice.

By the Linderman method two 4-in. strips can be joined to make 8-in. shiplap at a cost which will no exceed 75c per thousand feet and a comparison of the figures between 8-in. shiplap and 4-in. common lum ber at what it is sold for adding to it the cost of joining it together by the Linderman method and the cos of milling it, leaves a net increase in price of from $2.50 to $4.00 per thousand. 10-in., 12-in. or even wide widths can be built up in the same manner and at the same cost per thousand, no matter whether the lum ber being worked is spruce, hemlock, fir, cedar or pine.

Narrow lumber can also be joined together for rough sheathing, partition work, barn or subflooring and other purposes.

**There are eight different lengths of Linderman Machines built to work**

# CANADIAN LINDERMAN C



# ed into 8 in., 10 in., and 12 in. SHIPLAP

## a Greatly Increased Price for Common Lumber

### s a return of from $4.00 to $5.00 per thousand

Shorts and odd lengths can be joined to narrow widths making a composite board of any length desired up to 16 ft. This is accomplished by running a binding strip on the outside the full length desired and joining to it two or more pieces of miscellaneous lengths that will equal the length of the binding strip. To this can also be joined another series of short lengths so arranged that the butt end joints will not come opposite one another and to this then can be joined the second outside binding strip. Such a composite board will show tight joints not only where they are joined together on the edges but the butt ends of the boards will be tight making a board as strong or stronger than the natural wood. Such a product, while it may not bring a price equal to a wide board of the same dimensions, will yet yield a profit of several dollars per thousand over the cost of manufacture. In this way the cuttings from the flooring machines or from the saw mill can be converted into a marketable product instead of as now being sold for kindling or sent to the burner.

Full information and particulars in detail will be gladly given and we will arrange to work samples of your own stock if you so desire.

**t up to three, four, six, eight, ten, twelve, fourteen and sixteen feet long.**

# MPANY, LIMITED,

WORKS AT:
MUSKEGON, MICH.
WOODSTOCK, ONT.

# An Interesting Article Relating to Lumber Driers and Their Operation

The question of drying soft woods has always been a comparatively easy matter as compared to the drying of hard woods. The soft woods are less susceptible to checking and warping during the drying process and will stand much higher temperatures than the hard woods.

Without a doubt the most difficult wood to dry is oak and more so is this true because of the class of manufacture for which oak is used, and especially in the manufacture of furniture which requires the most careful seasoning in order to produce high grade results in the manufactured article.

The question of constructing a dry kiln for drying hard woods, such as red and white oak, birch, maple, beech, and the other finer cabinet woods is a problem that should not be left with a novice, but which like other lines of special business that has required years of experience to build up should be left with a competent firm of dry kiln engineers or manufacturers that have had years of experience in designing and erecting dry kilns for the drying of oak and other hard woods.

Experience has proven that the progressive system of kilns as a rule give the best results and are the most economical in operation. Progressive kilns should be built as long as conditions will permit, and the heating apparatus and the system of ventilation should be so designed and arranged that when the lumber enters the kiln that it comes in contact with a comparatively low heat combined with relatively high humidity, and as it progresses down through the drying room to the unloading end that it comes in contact with a much higher temperature and at the same time a dryer air, or in other words, an air with a relatively low humidity. Careful attention must also be given to the construction of the dry kiln building and the doors for closing the end openings. Of the numerous different materials that could be used for a dry kiln building, brick seems to hold the prestige for the wall construction, and as the tendency of late is towards fireproof construction, hollow tile and reinforced concrete has become the predominating material for roof construction.

The most popular door at the present in use for closing the door openings is of a slatted wood construction and an asbestos lining, these doors being handled by means of an unique patent carrier arrangement.

It might be stated here that no matter how perfect a system of ventilation or arrangement of heating apparatus the modern kiln may have that the best results cannot be expected from a poorly constructed building and loose fitting doors, as any leakage through the walls, the roof, or around the doors will naturally effect the circulation of air inside of a kiln as well as the temperature.

Another very important feature in operating dry kilns is the handling of the kiln dried lumber after it comes from the drying rooms. Lumber should not be taken directly from a dry kiln into the factory, but as it comes from the kiln should be left piled on kiln cars and transferred to a dry storage room, and this dry storage room should be so arranged and located that it will hold a number of kiln cars of lumber and should also have a small amount of heating surface in it to keep out the dampness in the summer time and so that a temperature of 70 degrees can be maintained in the winter time.

One of the material advantages to be gained by having a well arranged storage room is that it permits storing ahead several different kinds and thicknesses of lumber to which immediate access can be had. This eliminates the disadvantage of waiting for the lumber to come from the kiln, and furthermore makes a one room kiln nearly as efficient as having numerous kilns. With a storage room to take the dry lumber from, a one-room progressive kiln can be operated with a number of different kinds of lumber in it and the disadvantage of having a car of lumber of a certain kind that might be wanted for immediate use back in the centre of the kiln is overcome because with this kind of an arrangement the storage room is providing the different kinds and thicknesses of lumber for immediate use, and the kiln is only being depended on to replenish the storage room. On account of this fact the storage room is more important to small manufacturers than to large ones, because the small manufacturer needs less dry kiln capacity and generally has one room to take care of his requirements and he has to make this one room kiln meet his requirements for drying all kinds and thicknesses of lumber. The storage room feature is no less important for large manufacturers, but they have the advantage over the small manufacturer from the fact that they are cutting up sufficient quantity of lumber so that it takes a number of kilns or rooms to supply their daily capacity, and this gives them the advantage of being able to use separate rooms for the different kinds and thicknesses. It is much better practice to take the lumber from the kilns directly on kiln cars into a storage room and allow it to stand two or three days before using rather than cutting it up directly from the kiln.

A great deal of experimenting has been done within the last two or three years in regards to steaming lumber before drying it. Preliminary steaming of lumber before drying might be divided into three different classes:

First—Steaming under pressure with live steam.

Second—Steaming in steam boxes or chambers with the use of exhaust steam.

Third—Steaming it directly inside the kiln with exhaust steam with a spray jet.

Steaming under pressure with live steam by putting the lumber in a steam tight cylinder, although accomplishing in part the result desired has been found expensive and has not met with general favor, on account of the extra expense and the great care and attention required in its use.

Steaming with exhaust steam by making use of steam boxes built on the loading platform of the kilns, or by partitioning off the loading end of the kiln with a curtain has given fair results, but the great difficulty with this method of steaming has been being able to construct a steaming box that would last for any length of time, or that could be built tight enough without a large amount of the steam being wasted.

Steaming with a spray jet directly inside of a kiln at the loading end should not really be called a steaming process. This method is used more to give the

desired humidity at the loading end of the kiln so as to sweat the surface of the lumber and thereby open up the surface pores. This method requires but a very small amount of steam through the spray pipe to give the desired moisture in the air to cause the sweating of the surface of the lumber, and has become more popular than any other method, on account of its simplicity and economy.

Without a doubt the most discouraging element in the design and manufacture of a number of the present day dry kilns is that they are too complicated and based on too fine a theory and lack of practical experience.

There is no necessity of a modern dry kiln being burdened with complicated equipment, or shrouded in mystery. It is only necessary to understand the laws of nature, combined with experience and the nature of the different kinds of wood in order to construct a successful lumber drier.

However, as previously stated in this article, this should be left to experienced dry kiln manufacturers, and without a doubt the kilns that come the nearest to adhering to the laws of nature in reference to the matter of circulation of air, an application of heat, and the ones that are simple in construction, and as free from complicated apparatus as possible, are the ones that will give best results in actual operation. In other words, a manufacturer when he buys a dry kiln and has it completed and in operation, wants that kiln to dry lumber every day of the year, without having to give it constant attention and the expense of hiring an expert to operate it.

(Editor's Note—We are indebted to the Morton Dry Kiln Company, of Chicago, Ill., for this article).

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### Pulley Covered With Leather Prevents Slipping
### How to Make a Non-Slip Pulley

Wherever power has to be transmitted by means of pulleys and belts, there will always be a certain amount lost in transit. Even in the best laid out mills or factories you find an awkward drive here and there. It may be that space, or the want of it, compelled the millwright to have a vertical drive or to have a very short drive on some machine. Result, of course, excessive slippage. The simplest and most effective remedy in such cases is to cover the driven pulley with leather. Take a piece of old belting the width of the pulley you want to cover, pull it tightly around pulley to get the length, and cut it off about one-quarter of an inch shorter, and lace it together with wire. Then drive it tightly over the pulley with a piece of wood and a hammer. If you have it a good, tight fit, it will need no fastening. Should you have any doubts or fears, however, bore two holes about 3-16 in. and fix with copper rivets. I have found this to be a very useful hint on several occasions. It gives a good surface for the belt to grip, and wears for years without attention.

J. M. N.

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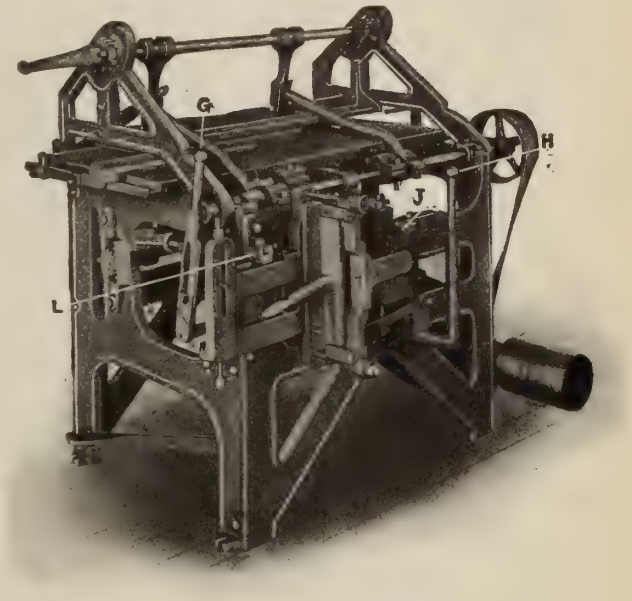
Scientific methods are to replace the old system of factory inspection in Illinois. In a recent civil service examination for factory inspectors, men specialized for different classes of inspection passed. For mechanical appliances inspectors mechanics alone qualified; for ventilation inspectors, experts on the subject secured the positions, for structural iron work and all the other classes, an expert in each trade was made an inspector.

### A Perfect Window Frame Machine

Many years' experience in carpenter work demonstrated the necessity for a simple and practical window pocket. The pockets in use until recently were all cut by hand, having bevelled ends and supported by nails or screws. Altogether they were quite unsatisfactory, both for use and to manufacture.

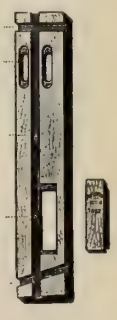
In 1892 there was produced what we called the "Perfect Pocket," which was simplicity itself and practical from every standpoint except its manufacture. Being cut on the inside of the pulley stile and having a ¼-inch square shoulder backing at each




Window Frame Machine

end, the carpenter could not make it satisfactorily. This led to the production of a machine.

The first machine for cutting pockets in window frames was introduced by the Smith & Phillips Mfg. Company, fifteen years ago. At that time one hundred per cent. of the frames were made by hand and fully seventy-five ped cent. were made by the carpenter and not by the mill. Crude as the first pocket machine was, it demonstrated that the making of window frames was the mill's business, and not the carpenter's, from the fact that the part requiring the most labor (the pocket) could be done in but a moment by a machine.



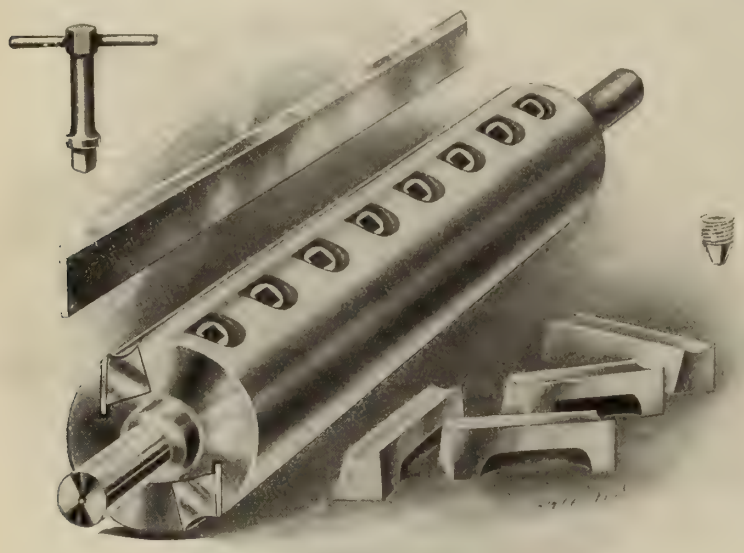
Their next introduction was the Combined Pocket Cutting and Pulley Mortising Machine, Dado and Saw Table, and to-day there are few well equipped mills without this commonly known "Perfect Window Frame Machine No. 3." This machine complete requires a floor space of only 3 ft. 4 in. by 4 ft. 8 in., weighs 1,100 lbs. and is easy to operate. All the work is done on the one machine, saving time and labor, thereby reducing cost of frame making to a minimum.

As a result a new and profitable branch of mill work was introduced and many are the testimonials the Smith & Phillips Manufacturing Company has as to the profit this machine affords the mill.

Further information and literature describing this tool will be sent upon application to Smith & Phillips Manufacturing Company, 412 N. Sangamon Street, Chicago, Illinois.

# The Use and Care of the Thin Steel Knives

The general use of thin air hardened steel knives for all kinds of planing and surfacing, has brought up among woodworkers everywhere, quite a lot of discussion in reference to their value, use, and care. The value of the round head with the thin steel knives lies principally in the fact that with this type of head much more and smoother work is possible.



1st.—Because the round head will run in better balance than the square head.

2nd—Because the thin steel knives will hold a better edge longer and can be jointed off many more times before it is necessary to grind than the old thick soft steel knives.

3rd—The round head properly jointed will not tear out when cutting knotty or cross grained stock.

4th—It can be fitted with two, three, four or six bits, according to the work to be performed.

5th—On hand planers it effectually prevents serious injury to an operator as the tables can be set very close to the head and fitted to conform to the circumference of the head itself, which effectually closes the opening and makes it impossible for the operator's hand to be drawn in.

In the construction of a head, two features are essential, that is, simplicity and strength.

For the purpose of illustration, take the Fay-Egan Patented Cylindrical Cutter Head as shown herewith. This is a two knife head but the construction of the three, four and six knife head is upon the very same principle. It will be noted that the head is turned out of a solid steel forging and that very little of the metal has been milled out to form the holders for the knives, and the part that has been milled out is effectually closed up when the knife and clamp blocks are in position. It will be noted that the blade is slipped into position and held there by a series of milled blocks which slide into the head very snugly. These blocks are in turn clamped against the knives by means of hollow set screws. When fitted up ready for use the head is practically a solid cylinder giving it great strength and as there are only two parts for holding the knives, it is about as simple as can be made.

This type of head is used not only on Fay-Egan hand planers, but on all their surfacing and planing machines, including their Fast Feed No. 333 Matcher.

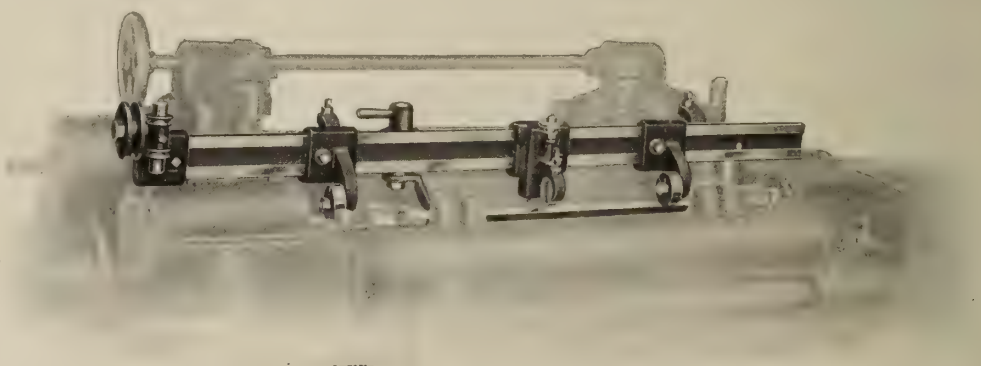
To get the best results from these round cylinders with the air hardened thin steel knives, the machine upon which they are to be used, should always be fitted with a jointing and setting attachment. For hand planers the Fay-Egan Company furnish a jointer as shown in Fig. 2—while power feed machines are fitted as shown in Fig. 3. The two outside slides carrying rollers for setting the knives, while the centre one carries the emery wheel or stick for jointing. This attachment can be purchased and applied at a slight cost and will in a short time pay for itself.

Soft wood and some oak may be worked successfully with the knives straight on the side presented to the cut—that is to say, the front side. To get the best results from maple, birch, quartered oak and other woods of light texture, however, the knives should have a bevel of about 15 degrees on the front side. The back of the knife should have a bevel of 37½ degrees.

To grind the knives, clamp firmly on the bar and set it to give angles as above. Grind lightly to avoid heating the knives and do not allow any water to touch the knives while they are being ground.

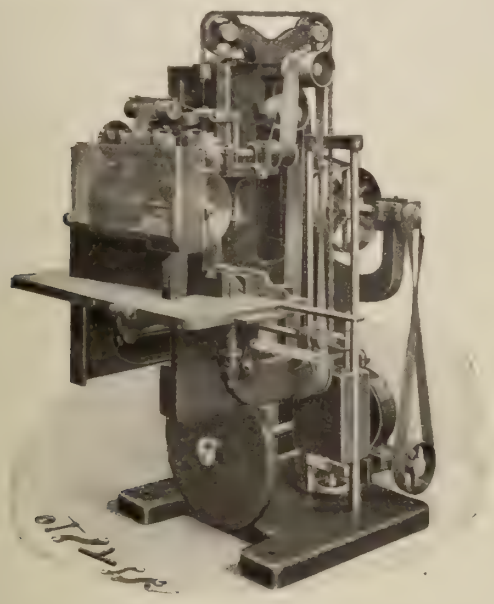
Before taking the knives from the grinding machine, try with straight edge with the clamp bolts slackened. They must be straight on edge and must not be sprung in putting them in the cylinder.

Before setting the knives, take out the dull knife or the wood strips that have been put in place of the knives taken out to be ground. Put in a sharp knife, allowing it to project a little further out than its regular position. Set the second screw from each end of the cylinder just enough to hold the knife and not tight enough to prevent the knife slipping when it is revolved against the knife setting rolls. When all knives are in the position put the rolls on the bar and place the bar in its fixed position. Place the rolls in

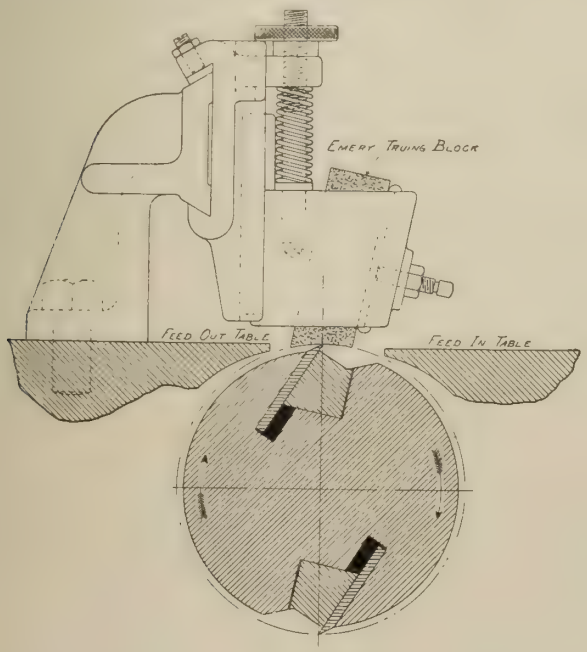


position over the setting screws that are holding the knives, and turn the cylinder in its regular direction until all knives have been pushed back by the rolls to their proper position. Then clamp the knives firmly with all the screws.

To use the jointing attachment, remove the setting rolls from the bar and put in the jointing device, that is to say, perfectly parallel with the body of the cylin-



der, adjust the jointing device so that the knives will clear it. Then run the cylinder full speed and pass jointer over the cylinder (not too slow) allowing the jointing stone to touch the knives very lightly until all the knives have been touched in this manner. Repeat this operation whenever the knives get dull, but never joint any more than is absolutely necessary. When the knives have been jointed several times a flat




surface is formed on the cutting edge, causing them to cut hard. When the knives are in this condition they should be reground either with the grinding device or on a separate grinder.

To use the grinding attachment, take the bolts off the cylinder, put the bar in its fixed position, placing the grinder upon it. Adjust the knife stop so that the grinding attachment will just remove the heel made by repeated jointing. Do not try to grind the full face of the back bevel. When the wheel of the grinding attachment touches a little more than half the thickness of the knives they should be removed from the cylinder and ground back to the above mentioned angle of 37½ degrees.

Where the machine is run on slow feed and little knife marks are not objectionable, it is not necessary to use the jointer. It will be sufficient in this case to use the grinder to keep the knives sharp.

When using the grinding attachment care should be taken to keep oil off the emery wheel. This can be done by using a small oil can with a starp spout when lubricating the running parts. If oil does get on the emery wheel, scrape the cutting surface with the edge of an old file until it is perfectly clean.

By carefully following the above instructions the full value of the improved heads is obtained at all times.

E. C. S. Schwertman,
Of the J. A. Fay & Egan Co.

### A Big Sawmill in the North Country

The farthest north stationary saw-mill plant in Canada is that of the Finger Lumber Company at Le Pas, Manitoba. This plant is situated at the end of the Hudson's Bay branch of the Canadian Northern Railway and on the Saskatchewan River. The town of Le Pas will be the eastern terminus of the Hudson's Bay railroad, now under construcitno.

The Finger Lumber Company's project is still a young one. The company's executive heads consist of H. Finger, president; C. R. Smith, vice-president; W. H. Miner, secretary-treasurer and J. R. Jacobson, sales-manager. The industry is one of the largest and most important in the district and the employees of the company make up an important part of the town's population. The saw-mill and the planing-mill in connection are both thoroughly modern structures. The saw-mill has a capacity of 115,000 superficial feet per day of ten hours. It is equipped with gangs. The building measures 250 feet by 64 feet. The planing mill is 150 feet by 60 feet. The power is made by an engine of 600 h.p. steamed by a battery of five boilers of 175 h.p. capacity each. The mill-yards have an area of 480 acres. One of the features of the construction of the mill are the rafters in the upper storey. These sticks are 12 inches square and extend the entire width of the mill, those in the saw-mill being 64 feet long.

The exact situation of the mill is on the south shore of the Saskatchewan River and at the mouth of the Le Pas River. The logs are brought from the Carrott River district, the limits being distant about five miles from the mill. The limits are very extensive, the growth being largely white spruce. The logs are towed to the mill in rafts.

Work on the Finger Lumber Company's mill was started in the fall of 1910. The plant started sawing in the summer of 1911. The mill is now sawing night and day. The total yearly output when sawing double is 1,500 cars.—The Western Lumberman.

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When a business man looks as if he were making money he increases the chances of his making it. Prosperity breeds prosperity.

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If you are living for the exclusive purpose of having a good time, run out and play with the children and don't be bothering business men.

# Told on the Log Deck

**Continued from the October issue**

By Horace Raymond Fiske

"No," I said to the grinder, the strange silence, the apparitions my overwrought mind brought before me, "$500 is not my price. Nor is $5,000—nor $5,000,000."

The whistle blew before I knew the time was anywhere near the quitting hour. I shifted the grinder belt, washed, and started toward Mr. Hayes' residence, resolved to return the money at the first possible moment.

His wife met me at the door of their homelike little cottage, which sat well back from the street and was well framed in shrubbery and vines. She knew me and invited me in. I went. I saw everywhere the touch of feminine hands; the little comforts one rarely finds in boarding houses were on all sides. It took me back home. I was so glad that I had acted a man that I wanted to yell.

Hayes came in presently, his face less serious than I had ever seen it, with a big smile of welcome. There was no trace of wonderment as to what had brought me; no trace of anxiety concerning the $500. But I knew he was far too hospitable to ask concerning my mission.

I told it at once. He seemed surprised, and thanked me very sincerely for the haste with which I had returned the money. He did not say much about it, however. I declined his invitation to have supper with him, and went to my boarding house.

After I had eaten my evening meal I was approached by a former associate, a man whose reputation blazoned him the biggest and most successful gambler for miles around.

"Byerly," he said, "let's have a little game of poker. I'm spoiling for one. Where'll we go?"

"To ——— if we gamble," I replied mighty quickly and with a great deal of meaning.

"Pooh," sneered Selford, "Religious, are you? What worked the miraculous transformation?"

"Not religious, merely sensible," I told him. "I'm going to be a man, Selford; it pays."

He glowered at me like a beast there in the semi-darkness of the verandah. "Which is to say that I'm not a man, and that you consider yourself better than me and refuse to associate with me. Is that it?"

Selford was a sort of bully, and many were afraid of him. I admit that I had hitherto feared the man myself, big as I was. So Selford had one of the chief surprises of his life when I said to him:

"You've sized it up exactly right."

He took it as an insult. He doubled a fist and struck at my face. I dodged it, and struck back with all the strength I could muster, landing on his throat. He tumbled across the veranda and into the grass.

Selford had the shallowness that characterizes most bullies when they have been outdone.

"You're already a man, Byerly," he said, tremulously, and went limping to the gate. "I earned my $10 alright."

Earned his $10! What did the fellow mean? Who was there that had hired him to do me hurt? I had no enemies that I knew, and the incident greatly puzzled me.

The next morning the old filer who had been such a great friend to me, left his bench-work and came across to where I stood setting the teeth in a slasher.

"Byerly," he announced, "I think I'll begin to teach you a little about hammering the bands, if you like."

"If I like!" I yelled out in my gladness. "You bet I like! Any minute, Mr. Hayes."

"Then come over here," he ordered. "There is nothing pushing us now. The saw I have just placed on the bench is too narrow to be of much further service, and I am going to give it to you as your own saw. It needs working, and when you have made it pass muster with me we will put it on the wheels."

We had reached the bench by this time. The old man took up a piece of chalk and wrote one word on the body of the blade.

"That," said he, "is the magic word that brings all things. But to the saw; it is merely a matter of acute common sense to put it up. It is a case of comparatively simple reasoning to conclude that the plate should be level, that it may have no tendency to turn aside. Naturally the strain should come on the edges to make them taught enough to stand up, with a bit the most strain on the cutting edge, which accounts for both crown and tension."

He gave me a hammer and a straightedge and put me to work, and I was one of the proudest men in the whole world. And in two days, having given the band all my spare time, I called my tutor to examine my saw—my own saw.

He ran a straightedge over it for a few yards of its length, then turned to me.

"Let's put it overhead, so you can level the inside," he smiled.

"But I have already leveled the inside," I replied. You see, the many hours I had spent humped over that hammering bench were very fresh in my memory.

"You did the very thing most beginners do," Hayes told me. "You put your lumps and ridges through from the side you hammered last, the outside, or log side. It is a common fault, and one of the greatest I know."

I set to work again, and no man ever tried harder than I did to get his saw right. And you could have knocked me down with a straw when I was told that I had to do it all over again! But the old man wrote down that magic word, and I went to it with my teeth closed hard.

When at last I had the blade in a condition that passed for being level, my tutor picked up a tension gage and showed me how to apply it. The saw showed tight inward from the teeth all the way around, more, however, at some places than at others.

"Now," said Hayes, "I am going to tell you why it is that many young filers get into trouble. The tension is the greatest thing in a band; it controls, more than any other thing, the running of the saw. I have known men who were experts in everything else pertaining to their work, to have a tough time of it holding their places on account of the way they did their tensioning. See this section here? Note that the gage rides hard on the front quarter, also that it rides a bit in the back quarter. Now watch me."

He rolled several hard lines in the middle.

"Now test," he ordered. And upon doing so, I found that the gage touched only at the edges.

"It appears that the whole width of the saw was affected," said Hayes. "The central part being unduly stretched, brings the quarters down also. Here I have given you an exaggerated illustration of a great fault—not rolling in the right place, and rolling too hard on a little surface. Upon testing with the end of your gage, or with a straightedge on the upper bend, you will find that the quarters are just as they were before, and that the middle only was affected.

"Of course, the filers who barely creep through know more than to be fooled so much as this. Their trouble is frequently caused by merely having a tire just twice too wide. This causes a tendency to dodge upon entering, usually to the outside of the log. Another common fault—which, by the way, occurs generally with the man who doesn't like to do any more real work than is absolutely necessary to insure the coming of his pay envelope—is that of not going near enough to the teeth with the roll on account of having to restore the back.

"Many will tell you," Hayes went on, "that to go so near the edges will cause cracking of the plate. One may go mighty close to the edges, Byerly, if he gets his tension regular all the way—and in this lies the principal rub. But I will mention that I have always considered cracking in this light: it is the saw that is always on the verge of fracture from edge strain that gets out the maximum output of lumber. Therefore it strikes me that one should draw a mighty fine line between fracture and non-fracture, keeping barely on the safe side. Now make your saw fit the gage all the way around, and distribute your rollings well."

I was the spare time of two days doing this. I took all the pains possible with me at the time. The old man very kindly turned my saw down as unfit. He held it up on one hand and rocked the straightedge over it with the other. My saw showed flat on the front edge for 2½ in. inward.

"It would take a slow feed," he told me, "but it would dodge readily on anything like the feed given saws here. You must get this tire down to 1½ in. at least; even less would be better on this narrow saw."

"But it lets out the back," I objected.

Hayes smiled and wrote down the magic word.

So I worked it again, back and all. I was several days doing this, and Hayes helped me right along. Then we swaged and sharpened it and put it on the right-hand mill.

I was afraid to go down to see it start off. I had become so interested in the work that it would have been like a fist of iron to me if that precious saw—my own saw—were to fall down. I watched my tutor; I saw him cock his head to one side, his eyes turned thoughtfully upward, listening for the right-hand mill. He was interested, too; for one thing, he would not have cared to have an unworthy blade sent down.

And pretty soon we heard the right-hand mill—Zoo-o-o-o! Zoo-o-o-o! Zoo-o-o-o!—three boards had fallen to the live rolls. The old man faced me.

"She's all right," he said. "Hear how clean she sounds? Let's take a look at her, Byerly."

We did. Gentlemen, it has been many years ago, but I still remember the feeling of pride that surged through my boyish heart. Why, I was a band saw filer! Right there was flying, screaming proof that I was a capable man; right there before my eyes. Soon I would be holding a big position, as big as that held by Mr. Hayes, and perhaps making $8 a day. Visions of a home, and the touches of feminine hands, and all the little comforts not found in a boarding house, began to flit through my mind—and then my air-castle crashed about my ears with such force that I felt crushed, lifeless.

There was a great bang and a roar, a shower of dust and sparks, and my many days of hard work lay in a shining, twisted, trembling, broken thing that hardly resembled a saw. A turning log had brought my saw off the wheels on the back-up.

I didn't hear the light-hearted laughter of those who were teasing the block-setter for running. My friend sympathetically took me by the arm and led me back to the filing rodom. When my saw was placed, shapeless and ugly, on the floor beside the bench, it made me sick.

I was not quite a band saw filer! Hayes squared the broken ends for a braze, and wrote the magic word on the crippled plate.

How I made that braze, how I got that saw straight, I do not know. I remember a jumble of things about it,b ut nothing clearly except that my tutor helped me through it. And, believe me, I did not again tempt fate by telling myself that I was a capable man as soon as my pet went on the wheels. The mishap, however, was the very best thing that could have happened to me.

After another year, at the end of which time I had become capable of doing much of the bench-work in the Bellingham mill, my superior filer came to me one morning with tidings that almost gave me palpitation of the heart.

"The filer has quit over at the Mordaunt plant," he said, "and I have secured the place for you you. Go ahead, and make good. It's $6 a day, being a single mill. Don't worry about me; our left side is going down for a turning-up, and by the time it is finished I can have a helper here. Now let me tell you something:

"Byerly, I lost my purse that time on purpose, to try you; and you were not out of my sight while you thought me gone to town. Also, I hired the bully Selford to tempt you to gamble again. Good-bye, old man, and good luck!"

I went to the Mordaunt mill and made good. The magic word? No doubt you've already suspected it. It's—Work.—The Wood-worker.

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### On Tallying Lumber

A Pennsylvania furniture manufacturer saved the trouble and expense of twice tallying every bit of lumber—once when unloaded from the cars and a second time when piled on trucks to be dry-kilned—by piling it when unloaded in layers the size of truck loads. Each layer was lettered and the tally sheets filed in the office by pile number and layer letter. Thus, 5-C meant layer C, pile 5. A lumber crayon mark upon a top board of each layer preserved its identity.

When a layer was transferred from a pile to a truck, a tag was made out, bearing the pile number and layer letter. This was attached to the truck and went through the kiln with it. When the cutter used this truck load, he removed the tag, dated it, marked on the bill the cutting he got out of the lot and sent it to the office. Here the number of board feet on the truck was looked up on the tally sheet on file and marked on the tag. Thus the quantity of lumber chargeable against each cutting bill was obtained with only one tallying operation.—System.

# From Coast to Coast

### Died of Injuries

Thomas Tofield, of Toronto, died in St. Michael's Hospital as a result of injuries received when a shafting gave way at a factory on Cherry street, a few hours earlier. Tofield was employed by Geo. E. Lindsay, and was putting a pulley block on a shafting, when it dropped, carrying a beam along. The beam fell across his abdomen.

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This year's building in Orillia, Ont., will amount to $400,000. Nearly two hundred houses have been built, but there is still a shortage and the manufacturers are asking the builders to construct more houses to accommodate the new families coming in almost every day.

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The October building permits for 1912 in St. Catharines, Ont., showed an increase of six hundred per cent. over October of 1911.

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Building permits in Winnipeg for the year to date have already passed the nineteen million dollar mark.

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Eight dry-kilns owned by the Canadian Western Lumber Company, Fraser River Mills, were destroyed by fire recently. A half million feet of lumber was also destroyed. The loss is estimated at $200,000.

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The Far West Lumber Company, Limited, Main Street, Vancouver, lately installed a Berlin 6 x 15 matcher and cut-off saw in connection with their supply yard, replacing the outfit destroyed by fire several months ago. n

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The big plant of the Vitcoria Lumber & Manufacturing Company, Limited, at Chemainus, Vancouver Island, underwent extensive improvements during the summer without intereference with the output. A new roof will now be added. Two Stetson-Reeb sizers were added to the equipment.

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The big shingle plant being erected near Ruskin, B.C., by the Stoltze Manufacturing Company, formerly of Washington, will likely be ready to commence cutting early this month. Nine or ten machines will be installed and the plant will have 84-inch cut-off saws—the first of the kind used in the province.

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A sash and door factory to cost about $100,000 is being erected at Eburne, B.C.

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L. Harkness, manager of Woodworkers, Limited, Victoria, B.C., reports an exceedingly busy season owing to the brisk building operations at the capital and all other Vancouver Island points, while the praire demand has been almost greater than they could cope with. The firm's sawmill at Sidney has been enlarged.

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The Canadian Puget Sound Lumber Company, Limited, Victoria, B.C., recently manufactured some derrick timbers of unusual size for a local paving company. The massive log cut scaled 8,255 feet ready for the saw, and when squared yielded two exceptionally fine booms, one 16 x 18 inches thick, 110 feet long, the other 12 x 16 inches and 106 feet in length.

### Busy in St. Mary's

The Wood Specialty Company is the scene of much activity these days. Orders are rapidly coming in for the winter trade and the men are working overtime to meet the demand. At present thirty hands are employed and the company are advertising for more help. An additional building 40 x 78 is being erected to give more room for increased business.

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Another busy place in St. Mary's is Baird's box factory, where thirty hands find work. Also the business is increasing right along.

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### Scaffold Broke and Two Men Were Injujred

Edward Ross and Archie McDougall, carpenters on a house on St. Clair avenue, Toronto, were thrown twenty feet by a breaking scaffold on to a pile of rubbish and bricks. Ross had his scalp torn and a hemorrage of the brain is feared.

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Pembroke will have a box shook factory to cost $14,000.

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Geo. Currie, woods foreman for the Okanagan Lake Lumber Company, Okanagan Landing, B.C., was badly injured recently when a log jumped the timber chute. Both of his legs were fractured—one so badly that it had to be amputated.

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The Brunette Sawmill Company, Limited, New Westminster, B.C., secured the contract for supplying the large quantity of lumber required for the new plant of the Call Switch Company, to be erected at Coquitlam, the new Canadian Pacific Railway town. The Cedar Cove Sash & Door Company, Limited, Vancouver, will supply the doors and windows.

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The Cameron Lumber Company, Limited, Victoria, B.C., some weeks ago set up a new twin engine of 350 h.p. which is doing splendid work. The company report a strong demand for their mill products, the local trade being particularly satisfactory. It is likely that next season a new planing mill of large capacity will be added.

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C. R. Gordon, provincial factory inspector, is insisting on the covering of dangerous machinery in sawmills, shingle plants and woodworking factories. Recently the superintendent of a Vancouver shingle mill was fined $250 for the non-observance of the Factory Act in the above particular.

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The E. Long Company, of Orillia, Ont., are shipping a number of complete sawmill plants to British Columbia. This firm is making a specialty of machinery suited to the big timber of the coast.

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The best way to learn more about what you are doing is by writing about it for the benefit of others. There is nothing else that will so thorughly concentrate the mind on the subject nor make the same careful analytical view.

# WOODWORKING MACHINERY

More than 1,000 Second-hand Machines, Renewed and Guaranteed.

52 Lines of New Machinery the Largest Stock in the World.

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**CHICAGO MACHINERY EXCHANGE, Inc.,** 1219-1227 Washington Bv'd. CHICAGO, Ill., U. S. A.

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*National Veneer & Lumber Co.*

Manufacturers of

## Quartered Oak Veneer

West Michigan Street and Belt Railroad,

INDIANAPOLIS, IND.

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## Ohio Veneer Company

Manufacturers of

**Foreign and Domestic Hardwood Lumber and Veneers**

Importers of
Mahogany and Foreign Woods

Office and Mills:

**2624 to 2634 Coleraine Ave.**

**CINCINNATI, OHIO**

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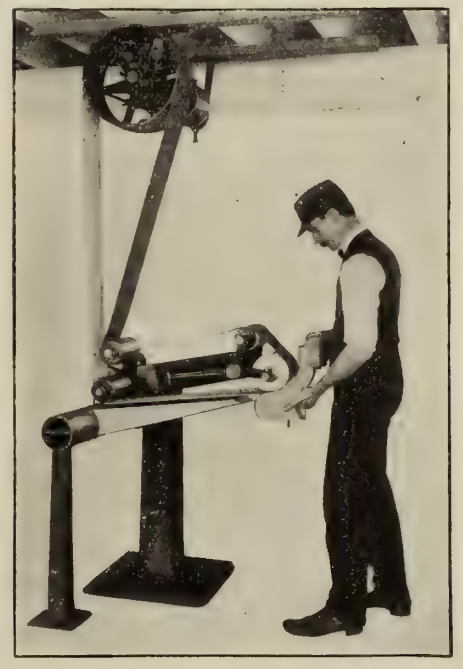
## The "ROCKFORD" Belt Sander

**Good on Irregular Work**

This machine will sand all kinds of irregular work, cross veneer, O. G. G. moulding, claw legs and spiral veneered posts, also serpentine drawer fronts. The rollers range from 1½ to 8 inches in diameter and can be quickly placed.



The machine is easily changed from one position to another making good and rapid work possible whether crooked or straight stock.

Dust collectors are also supplied with each machine.

The "ROCKFORD" Belt Sander is the best belt sander made for use in furniture picture frame and casket factories.

**ROCKFORD TOOL CO.**

Harrison and Eleventh Sts. ROCKFORD, ILL

For Sale by A. R. Williams Machinery Co., Toronto

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# Should be Investigated

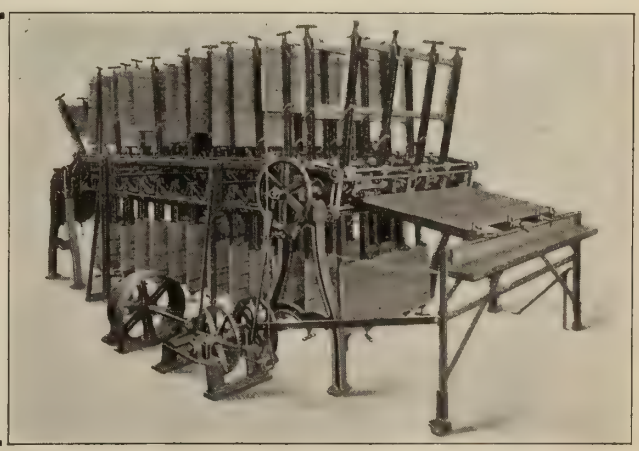
The advantages, conveniences and good points of this machine should be investigated by modern wood-working establishments.

**The Billstrom Automatic Glue Clamp Carrier**

modernizes the glue department thoroughly. The many dollars lost in the average glue room will help pay for this machine. One user said he would not be without it for many times its cost. Facts with complete particulars and description will help your investigation.

**We have over 170 machines in operation.**

**Nels J. Billstrom, 1315 Tenth St., Rockford, Ills.**



# OPPORTUNITIES

**Advertisements inserted on this page for "Positions Vacant" or "Positions Wanted" twenty-five cents per insertion.**

### New Furniture Factory

On the 28th of this month the ratepayers of Lindsay, Ont., will vote on a by-law. The proposition to be submitted is that the town guarantee the bonds of the newly formed company to the extent of $30,000 and to grant them exemptions for ten years.

Mr. Frank W. Roy Fisher, who has been connected with the Office Specialty Company of Toronto, and Newmarket, is at the head of this new concern, who expect to employ forty men the first year, and at least fifty the following year. It is the intention of this new firm to install $10,000 worth of machinery and carry out $3,000 worth of repair work.

### Big Deal Completed

It has been definitely announced that the biggest deal in lumber properties that has affected the province of New Brunswick has been completed. The deal is the purchase of lands, mills and other properties of the Scott Lumber Company and also the properties of the Oromocto Lumber Company. The purchasers are Donald Fraser & Sons, the well-known firm which operates mills at Plaster Rock and Edmundston, N.B. and at Cabano, Que. The Scott property which has just been purchased includes the Victoria mill in the eastern part of this city and its operation which is expected next summer will mean much for Fredericton.

The lands of the Scott Company are extensive and of great value. In all the property being about 52,000 acres in extent. Of that 32,000 is freehold and the balance leasehold.

### Opportunities for Foreign Trade

The following enquiries have been received from England and other countries relating to Canadian trade. The names of the firms and their addresses can be secured by interested parties by writing to the Enquiries Department, Canadian Woodworker.

Any of our readers who are answering the enquiries should not fail to forward references—particularly if bankers references.

160. **Balata belting.**—An importer and agent of Buenos Ayres would like to have the c.i.f. prices of balata belting.

161. **Canoes.**—An importer and agent of Buenos Ayres would like to have the c.i.f. prices for canoes. Full particulars ought to be given.

162. **Saws.**—A Birmingham agent is open to represent some Canadian exporters.

163. **Lumber.**—A Lancashire firm makes inquiry for the names of Canadian firms able to supply short-end lumber in 500 and 1,000 ton lots, suitable for the box-making trade.

### New Lumber Company Lately Organized

The United States Pacific Lumber & Logging Company, Limited, of Vancouver, recently incorporated, is composed of eastern and western men who have been identified with the lumber industry for years. The officers are: President, John M. Thompson, Menominee (Mich.); vice-president, D. J. O'Brien, logging operator, Vancouver (B.C.); secretary and treasurer, John W. Welsh, Vancouver (B.C.). The company already controls over 100,000,000 feet of fir and cedar limits within easy towing distance of Vancouver mills, and are negotiating for the purchase of about double that quantity from eastern holders. John M. Thompson, the president, operated extensively in Northern Ontario for a number of years, but disposed of his interests in 1907. At the present time he is president and general manager of the Spies-Thompson Lumber Company, of Menominee, Mich., and vice-president of the Hoit Lumber Company, of Detroit, Mich. J. W. Welsh, secretary-treasurer, was connected with the Buffalo Hardwood Lumber Company, of Buffalo, N.Y., for sixteen years. D. J. O'Brien, who is in charge of the company's logging operations, requires no introduction to the trade, being one of the best-known men on the coast

## Manufacturers

**Know that good work depends to a great extent upon good workmen. If you wish to get in touch with this class of men insert your want ad. on this page—the best men in the woodworking trade read it.**

**SUPERINTENDENT WANTED**

We desire to engage a competent superintendent for our general Woodworking Factory. He must be fully capable of shouldering the responsibility of the technical management of a good-sized sash and door plant and must fully understand the wholesale production of readymade and portable houses. No "desk superintendent" wanted. The plant is just about to be erected in the Canadian Northwest. Excellent opportunity for the right man. Write stating full particulars, references, and salary expected. Correspondence treated in strict confidence.—The Great West Iron, Wood and Chemical Works, Limited, Prince Albert, Saskatchewan, Canada.

"We offer the following machinery in good repair for sale cheap:—

1, 24-in. 2 Drum Fay Sander.
1, 6-ft. Moore Stroke Sander.
1, 76 x 30 Power Veneer Press.
Several 50 x 26 Screw Veneer Presses.

Apply, Hay & Company, Woodstock, Ont."

### Lubricating Materials

The primary object in using a lubricating medium is to decrease the friction between moving surfaces in contact, and next, to conduct away or tend to "cool off" any heat generated. Undue friction will cause heating, which in turn will expand parts, etc., resulting in abrasion, and probably ultimate "seiding," as it is termed, of the details working together.

Friction is actually the resistance one surface presents to another while being moved over it, and is due to, and is in proportion to, the roughness of these surfaces. Heat will obviously be developed if friction is allowed to exist unchecked, as all mechanical motion produces heat.

To reduce friction, lubricating materials are employed—that is to say, a film of some suitable medium is allowed to form between the working surfaces, which will prevent them coming into actual metallic contact. The "molecules," or atoms, of the material employed will develop friction, ond consequently heat, among themselves to varying degrees; it is obviously, therefore, desirable to utilize those mediums which will develop least friction and heat under the work assigned.

Practically, a journal may be considered as resting or working on an infinite number of minute "globules," or balls, of lubricant, and the oils and greases which will retain and replenish these supporting balls best under heavy loads or high temperatures will prove the most satisfactory in service. The property of supporting considerable weight without being squeezed out is a requirement of a good axle lubricant tor rolling stock. The work done in overcoming friction in the moving parts, if utilized for effective work, will add to the eficiency of a machine.

All bodies, whether fluid or solid, have some friction set up between their molecules on movement, but some have a much lower coeficient than others; likewise some possess the valuable property of conducting away, or decreasing the tendency to develop heat more than others.

Materials selected as lubricants should, in addition to being satisfactory in above requirements, be uniform in composition, so that they may be used with confidence; and, further, they must be neutral chemically—that is to say, they must possess no properties liable to injure metals or other materials with which they come into contact. A good lubricant should adhere tenaciously to metallic surfaces, so that it may not be easily rubbed off.

If used for lubricating the steam valves, cylinders, etc., it should be capable of withstanding high temperatures without being vaporized or carbonized. Nor should a good oil solidify at ordinary low temperatures, or there may be diffculties in handling and applying it. The action of the atmosphere should not produce "gumminess" or add to the "viscosity," nor should evaporation take place on exposure to the air.

### Conditions and Uses of Lubricants

It will be appreciated from the above mentioned attributes, sought for in lubricating materials, that few oils or greases will fulfill all; some have to be sacrificed to secure others, hence the reason why different oils are used for the various parts of machines working under different conditions.

There are three states in which lubricants are used, viz., liquid, as oils, employed chiefly for reducing friction; semi-solid, as greases, used for similar purpose to above, and preventing heating; and solids, as graphite, for forming smooth wearing surfaces, which can then be lubricated with thinner or less viscous oils.

Lubricating materials are secured from animal products (including fish), vegetable growths, and mineral deposits. The peculiar products of each are often combined by mixing or blending, and thus producing "manufactured" oil and greases which better meet requirements. Lubricants that are wholly animal or vegetable products are usually known as "fatty" oils.

Probably, on account of being first known, animal oils have been very largely used, and are ven now preferred for some purposes. They exist as oils, greases, or fats; as examples, ox oil, sperm oil, lard oil, and tallow. They can be used alone, or employed to mix with and thicken other oils. They are usually obtained by melting out the fatty tissues of the flesh of animals, fish, etc., in which they are found, the product being afterwards purified to eradicate smell and prevent decomposition and change.

Vegetable oils are chiefly derived from the seeds of certain plants; they are made use of either alone or in combination with other oils. Instances of vegetable oils are rape oil, olive oil, castor oil, cocoanut oil, etc. They are usually obtained by crushing the seeds or the fleshy parts of the fruits of various plants, and then heating the exuded product in various ways to separate the unsuitable constituents and to purify the oil.

There are two classes of vegetable oils—drying and non-drying; the former are of no use as lubricants if the drying action is at all rapid, as in oil, as they very soon oxidize and become gummy and resinous. The other kind, viz., non-drying oils, such as rape oil, are what are known as permanent liquids, or fixed oils, and are not subject to this action to any great extent,

Most of the non-drying vegetable oils are suitable, and some are unsurpassed, for use as lubricants for machinery and working parts of locomotives. Vegetable oils are not suitable for use in cylinders, as the heat there would decompose and carbonize in extreme cases, and in superheated locomotives they would be burnt. Mineral oils, which possess the property of standing great heat, have now supplanted the other oils entirely for the latter purpose.

Petroleum exists in large quantities in various parts, notably in the Caucasus, Roumania, etc., in Europe; Pennsylvania, Texas, Mexico, etc., in America; Burma, Persia, Borneo, etc., in Asia; and in the Soudan in Africa. The crude oil is obtained by methods which vary in different localities; but mostly by drilling or boring artesian wells until a pocket of oil is struck, when the confined gas drives up the oil with great force; quantities are often lost if adequate provision has not been made.

When the pressure has decreased, the oil is pumped as required, and treated for its different products. First, it is usually allowed to settle to enable the water, which in a greater or less degree is usually present, to be removed, and also any brought up with the oil to the surface. The crude oil passes then to the distillery, where different varieties of oil are extracted, including those pre-eminently suitable for lubricating.

These latter are of different classes, and posses different properties suitable for varying needs. The less viscous oils are better for the machinery, that is, the motion, etc., while the more viscous oils, which are usually darker in color, are specially applicable for

use in the cylinders, as they will stand a high degree of heat without being affected.

Manufactured oils, or mixtures of light mineral oils, with animal or vegetable oils to give them body, are very suitable for engine purposes or machinery generally, but should not be put into the cylinders, as the heat would affect the fatty components.

Generally speaking, mineral oils are safer than fatty oils, as they do not oxidize, and there is absence of danger from spontaneous combustion; they are also more uniform in quality, and purer, being free from acide; they do not gum. If very thin they require body, however, and this can be added, as mentioned above, by mixing with other oils.

Graphite is an example of a solid lubricant. It possesses a great many merits, as it adheres well to smooth metallic surfaces, and is not affected by temperature or acids. The only dificulty that attends its use is keeping it in solution in the oil with which it is mixed. A special form of lubricator is employed in which the mixture is continually stirred up to prevent the graphite settling. By its use the minute inequalities in the faces of the parts in contact are filled up perfectly smooth.

Graphite is a very pure form of carbon mined in various parts of the world. Two varieties are found—crystalline or flake, and granular or "amorphous." The former only is suitable for lubricating purposes; the latter, the more common form, being usually found mixed with sand, clay, and other impurities, which can only be separated with difficulty.—Locomotive.

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### White Pine Culls Now in Demand

A peculiar feature of current lumber demand in the old white pine sections of the north is the extraordinary requirement for low grade stock. It is so persistent and devouring that it takes in culls so rank that twenty to thirty years ago they would have been considered refuse, fit only for the roughest kind of patching up for sheds; and when accumulation became too burdensome they were thrown into the burner or used to build wharves or roadways, or for firewood. Grading downward has come with the demand for box material, until "three-men boards," as they have been jocosely called, are now graded as No. 5 or anything below that. The call for low-grade stuff has become so general and insistent that such stuff is more saleable than the medium and better qualities. This feature is true, not only of the lumber market of the Northern States, but pertains also to that of Canada. At Toronto the demand for the lower grades of pine is especially active and large, so that there is a veritable shortage of mill culls and what are called "dead pickings" in it. This condition with respect to the lumber market of Ontario shows how closely the lumber trade of that province is connected with that of this country, the same requirement for cull lumber —namely, for box manufacture—prevailing in that province as in the northern part of the United States. The way in which the cull lumber of the Northern States and Canada is being used up almost to the last carload has more than ordinary significance. It means that anything in the shape of a tree or log is being utilized in the way of sawed product, and that timber that was once considered unusable only as firewood is now being converted into lumber that actually sells quicker than good stock.—American Lumberman.

### Logging Engineering at the University of British Columbia

That lumbering should properly be regarded as a science and as a profession is the substance of a resolution recently adopted by the British Columbia Lumber and Shingle Manufacturers' Association and by the Canadian Forestry Association, favoring the establishment of a course in logging engineering at the new University of British Columbia. The success which has attended the agricultural colleges of Canada and the United States in equipping the farmers' sons with a scientific knowledge of husbandry, is evidence of what might be expected from similar courses devoted to logging engineering. The courses of study in our agricultural colleges have been intensely practical and helpful. The lumber industry deserves the same consideration for those who desire to become expert loggers and lumbermen, in the broadest sense of the term. Logging is rapidly coming to be recognized as one of the most important features in the lumber industry. Each year the difficulties increase, and the consequent demand for knowledge grows more apparent.

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### Wood in Pulleys

You have probably noticed that wood is very conspicuous in pulleys these days; that it is used in many places where it was not thought of before. It was perhaps the split idea that first made the wood pulley popular, and that idea is good yet, so good that it is freely used in metal as well as wood pulleys. But now one finds many wood pulleys where there is but little call for the split. A sample instance is on motors for driving machines. When dynamos and motors were new things wood pulleys were not a part of them. They are now, though, and they are an important part wherever belting is used. There are places where the metal pulley is essential, and it will always be used, but where it is not absolutely necessary to use metal the wood pulley seems to be getting the call right along.

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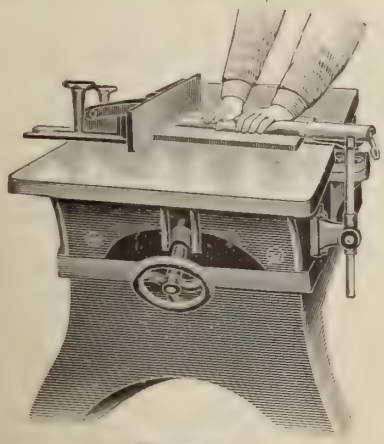
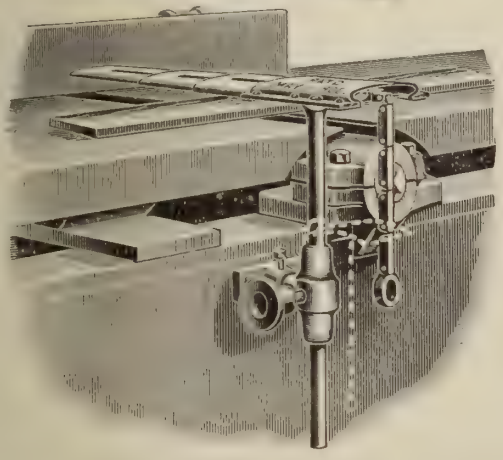
### After the Fire

A lot of wood-working machines that have been through a fire present about the most distressing sight one can find in the machinery line, especially to one who has been through the game after the fire and has tried putting them in order and into service again. Many of them look as if they have not been damaged much, and it is a pity to throw them on the dump heap, but many a man, after patching them up and trying to use them, wishes they had burned up completely while in the fire.

Here is a sample instance of "after the fire": The engine looked safe and good for further use, but on examination for rebedding it was found to be warped a little in the bedplate. The foundation was made to fit it, the slides were trued up and the engine finally started. Then it showed sprung crankshaft that caused a lot of trouble. There were some planers that looked like all they needed was the beds gone over a little, and—but what's the use? It is the same story over and over every time a man undertakes to put burned machinery to work again—he figuratively gets his fingers burned. One is always tempted to try his hand at putting such machines in order again, but judgment says the only sensible course is to ship them back to the factory and let the makers see whether or not anything can be made out of them.





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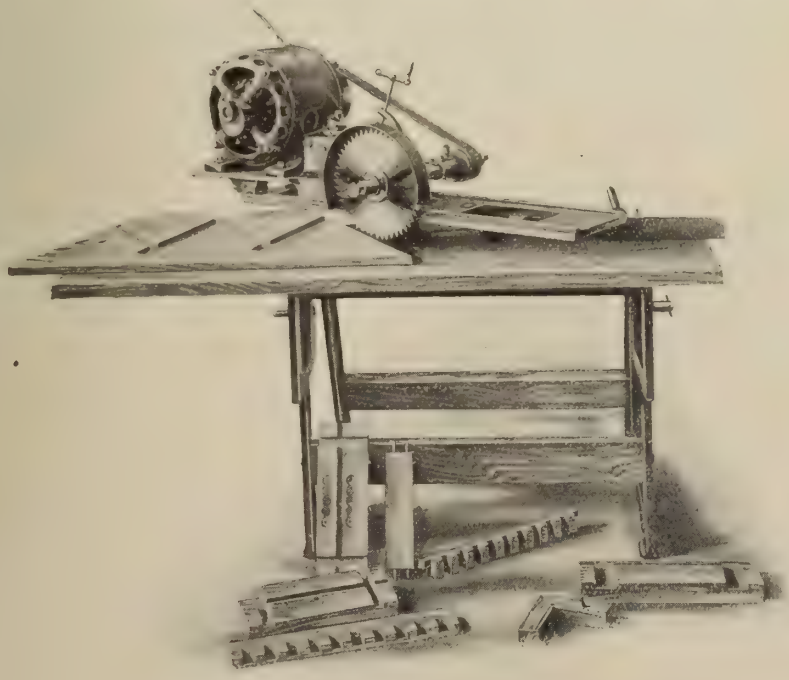
# THE ELLIOT WOODWORKER



Patented Canada, 1910, Patents Pending U. S.

The illustration herewith shows the Elliot Woodworker, No. 2, set for mitering, also samples of work done on the machine. For cross-cutting and mitering, housing out stair strings and other routing, it works on the principle of a swing saw, the carriage, with motor and saw, being drawn to and fro by hand. For ripping the carriage remains stationary. It is a combination of eight machines in one. With it you can rip, cross-cut, miter, rabbit, groove, plow, bore, stick mouldings, grind tools, or almost any kind of work required. It is fitted with a motor, and can be run by any house current; it can be carried from room to room, or out-doors for cutting joists, rafters, etc. One of the greatest features of the machine is the stair routing—a 16-inch stair string can be housed out in twenty minutes. You can save 30 to 40 per cent. of your labor bill by the use of this machine.

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J. A. Fay & Egan Co., Cincinnati, Ohio.
Ober Mfg. Co., Chagrin Falls, O.
The A. J. Burton Saw Co., Ltd., Vancouver, B. C.
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We carry in stock a full line of Hardware Specialties for the manufacture of Show Cases, Counters etc., Furniture and Cabinets, Sash and Doors.

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**The Reflector & Hardware Specialty Mfg. Co.**
Western Ave. and Twenty Second Place, Chicago, Ill.

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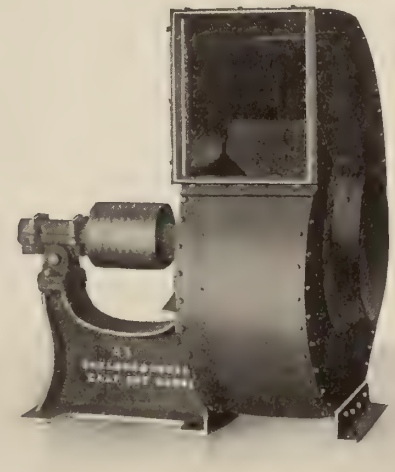

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# The Safe and Enduring Qualities of the "Shimer Limited" Cutter Heads

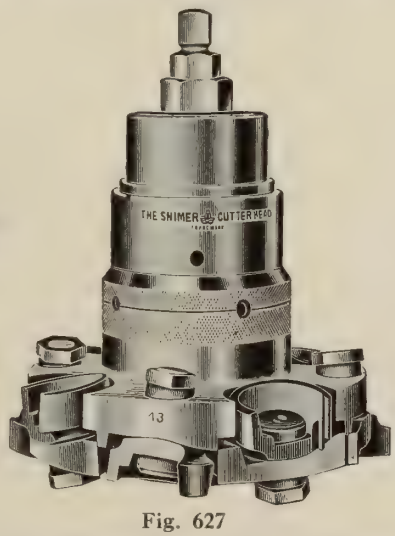



Fig. 627

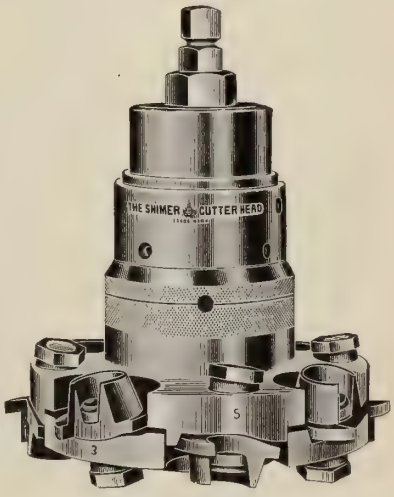



Fig. 628

**The "Shimer Limited" with Expansion, price $72.46 per set complete**

and the Efficient Service rendered by them, are making these Fast Feed Heads prime favorites with wood-working men who wish an increase of output without reducing quality of product.

There is nothing theoretical about them. Every advanced idea in their construction is a practical one. The experience of many years in building our older and more familiar patterns is back of every detail in their make-up.

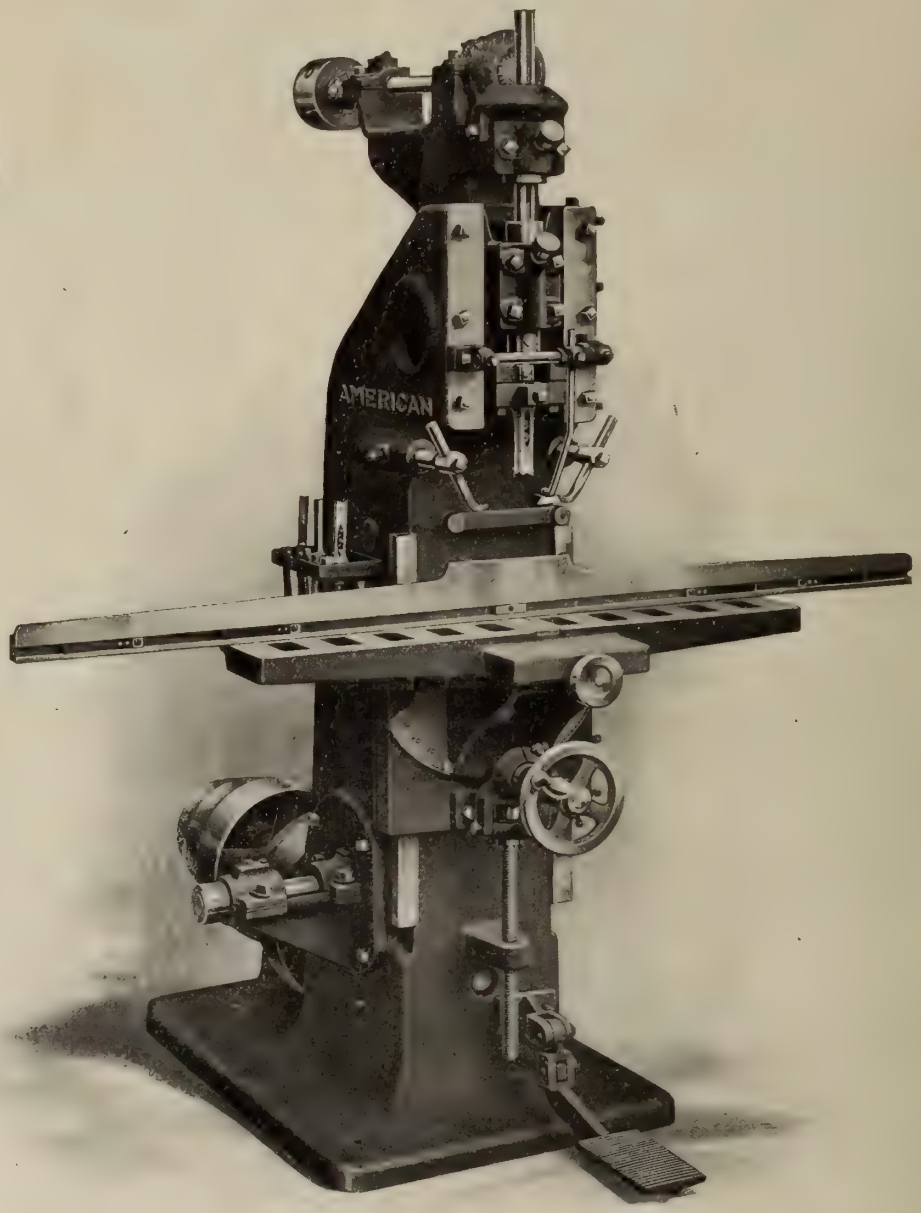
In appearance the Shimer Limited Cutter Heads resemble our older patterns, but differ therefrom in the method of attaching to the spindle, in the construction of the bit seats; of the bit designed for faster cutting, in the greater strength of the holding bolts, and in the self-centering device which clings to the spindle when drawn up, securing it firmly thereto.

These tools have already taken foremost rank because they have "made good" under the most severe trials. They have proved our statements that they have time and labor-saving features of note, that they are not subject to break-downs or to giving operators trouble in handling them.

They must be seen at work to be appreciated, hence we offer to send them on trial to any responsible lumberman anywhere. Price, net, in solid section, complete for making flooring, $67.00 per set. With the expansion feature $72.46 per set complete.

**Milton, Pa.** **Samuel J. Shimer & Sons** **Galt, Ont., Can.**

# American Automatic Vertical Hollow Chisel Mortiser




Our **Vertical Hollow Chisel Mortiser** is a compact and well designed machine for mortising in hard and soft wood for use in carriage, furniture, sash and door, and all other wood-working factories. It is automatic in operation and will mortise up to ¾-in. square by 3½-in deep.

Let us send you an illustrated circular of this machine. It's a brand new one.

Address office nearest you.

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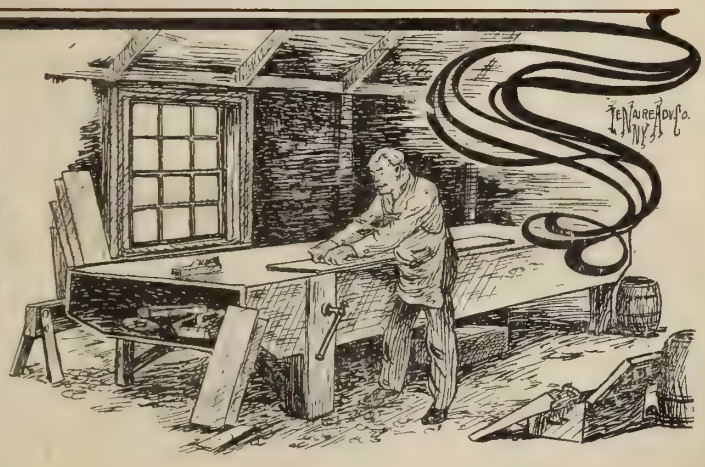
CANADIAN WOODWORKER

Toronto, December, 1912



CRAPING Flat Hard Wood Surfaces, Solid or Veneered on a

## WHITNEY Wood Scraping Machine

is a faster process;—costs are lower and results better than you can obtain by any other means or method—sanding or hand scraping.

¶ Ask us for some samples of hard woods passed through a Whitney Scraper so that you can see the beautiful grain effects—the open pores of the wood—the smooth even surface without scoured out spots and rounded corners.

¶ Or, better still, send us some samples of the woods you are working and compare the finish of Whitney Scraper work we send you with the work you do by your method.

¶ The low cost of operating a Whitney Scraper and the speed at which it works are worth considering.

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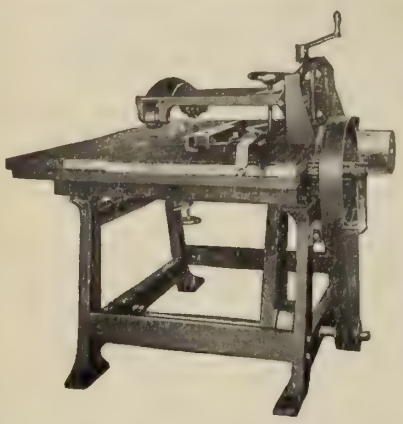
# The OBER Self Feed Rip Saw

is very

**SIMPLE STRONG DURABLE**

Write for complete catalogue and price list of our **Wood-working Machinery.**



**We Make—**
**Lathes, Sanders, Boring and Chucking Machines, Dowel Machines, Rip Saws, Swing Cut Off Saws, etc.**

If you are interested in machinery for making handles and other turned work it will pay you to investigate our machines as they get the work out very rapidly and are very economical to operate.

## The Ober Mfg. Co.

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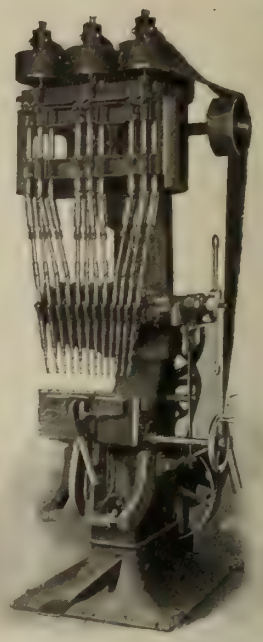
# Chair Seat Boring

is just what my

## Twelve Spindle Universal Boring Machine

is designed for.



It will bore twelve or less holes at once at any angle up to 35 degrees and from 1 in. center to center to 24 in. apart.

1,000 to 1,200 chair seats an hour can be bored on this machine.

It will also do a large variety of other multiple boring.

***Ask for interesting details***

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**842-848 30th St. - MILWAUKEE, WIS.**

## The M. Brennen & Sons Mfg. Co., Limited

**LUMBER DEALERS PLANING MILL**

Manufacturers of Doors, Frames, Sash, etc.
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***Detail Work a Specialty***

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We are always glad to Furnish Estimates.
Prompt delivery our Specialty. Write for Price Lists.

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# Power Veneer Presses

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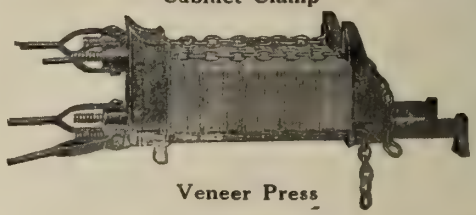

**Veneer Press**

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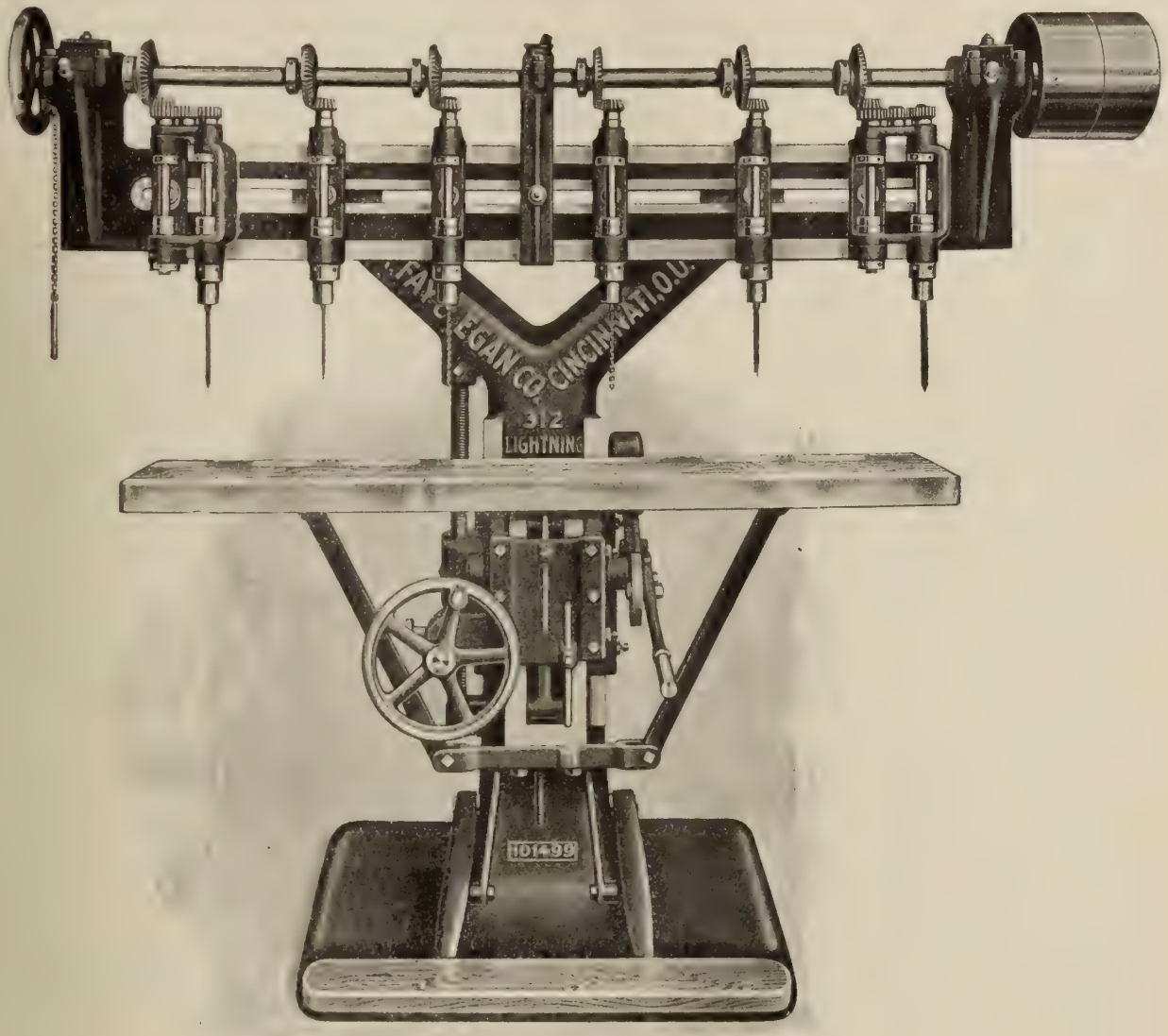



# A New Multiple Boring Machine

## FAY-EGAN "LIGHTNING" No. 312

Bores as many as 20 holes of different sizes either straight or out of line at one operation. No marking or laying off required, and every piece will be an exact duplicate of the others. Every adjustment is made from the front of the machine, and spindles are self-locking in any position out of line or on the driving shaft.

Spindles have phosphor bronze bearings with ball bearing end thrust and are driven by phosphor bronze gears, cut from the solid, eliminating troublesome belts, hot journals, and noise entirely.

Made any width from 20″ to 60″ outside spindle centers, with any number of plain or radial spindles. (Cut shows 60″ machine with four plain and two radial spindles.) Saves time—labor—power and money wherever used.

**Send us a sketch of your boring jobs and we'll send you full description of this tool and price fitted for your special work.**

## J. A. FAY & EGAN CO.

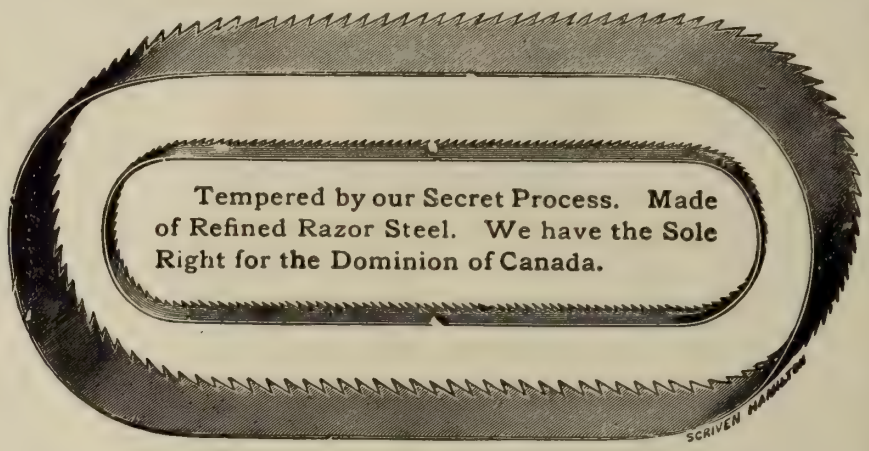
**153-173 Front St.** **Cincinnati, Ohio**

# Maple Leaf Saws

MADE BY

LARGEST SAW MANUFACTURERS UNDER THE BRITISH FLAG

We manufacture Circular Saws Gang Saws Mill Saws Band Saws Cross Cut Saws Buck Saws Saw Setts etc.




We manufacture high-grade **Band Saws** of all Widths and Lengths

These Saws are made of Refined Razor Steel, and Tempered by our Secret Process; for Fine Finish and Temper are not excelled.

**"Maple Leaf" Saws** are the best-tempered saws made

We are the only manufacturers in the world who export Saws in large quantities to the United States

**Shurly-Dietrich Co., Ltd.** **Galt, Ont.**

Western Warehouse and Office, Vancouver, B.C.

## Cut Off Nine-Tenths of the Cost.

### Add Most of it to the Proft.

When you make a large reduction in the cost of anything, the profit is not increased in exactly the same proportion. The price is bound to be somewhat less also. But in window frames, where the only competitor of the mill man is the hand workman—the carpenter—it doesn't make much difference in price to enable the mill to control the market.

That is what makes our **Perfect Window Frame Machine** such a great money earner for planing mills. It gives them a cinch on the frame business. While saving ninety per cent. of cost in making them, it ensures the mill man a profit that pays for the machine in a few months' run, and keeps on paying in like ratio as long as it is run. Where there is any market for window frames, the net earnings of a machine may safely be counted as from 50 to 75 per cent. of its cost, while often they go 100 per cent., and even more. Have you, right now, Mr. Mill Man, any machines in your place that are doing better? Any doing as well? Any doing half as well?

Machine does everything shown above.

**Here is a proposition well worth study. Let us put the facts before you.**

**Smith & Phillips Mfg. Co.**

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Our combination Machine for Stair Routing, Edge Jointing, Sash Grooving and Light Shaping is a four-time winner.

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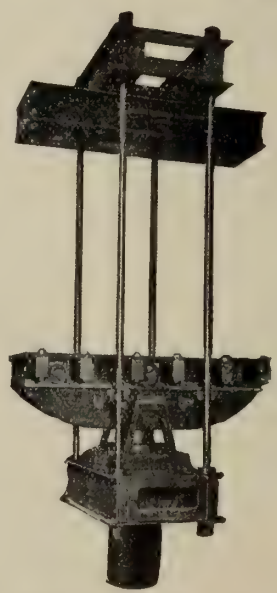

We build these presses in all sizes and styles for all kinds of Veneer work

**Write us for Prices**

**William R. Perrin & Company**

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TORONTO

# R. H. Smith Co., Limited

## St. Catharines, Ontario

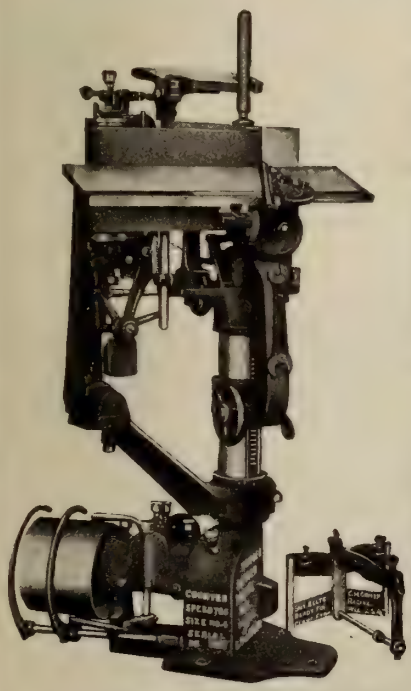
MANUFACTURERS OF THE CELEBRATED "GOLD COIN" SAWS

**We make Inserted Tooth Saws, Shingle Saws, Cross Cut Saws, Hand Saws, etc., etc.**

**We make every kind of Saw required in Saw Mills, Planing Mills, Furniture Factories, Piano Factories, Carriage Factories, etc., etc.**

We have been manufacturing for the Canadian trade since 1855, and have maintained the same high standard of excellence. Let us know your saw requirements.

# Manufacturers Attention!



Chicago, Ill., Jan. 20/12.
C. H. Driver,
Racine, Wis.

Dear Sir:—
Will you please send us cuts with full information and your very lowest cash price on "The Little Wonder Sander."

We have had one of your machines in operation in our factory for about nine years, but presume that you have made changes and improvements since then and of course we want one of the latest improved.

Your prompt reply will greatly oblige,

Very truly yours,
PRICE & TEEPLE PIANO CO

Since the above inquiry we have received their second order. This Sander is especially adapted for Piano Manufacturing, it is the only Combination, Reciprocating Belt and Spindle Sander, it covers a larger range of sanding than any other sander, it has proven to be a great Money Maker in all lines of manufacturing.

Write us for complete description

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**Highest Grade Babbitt Made**

**Specially Prepared for Carrying Heavy Loads**

# Harris Heavy Pressure

**Best Babbitt Metal for all General Machinery Bearings**

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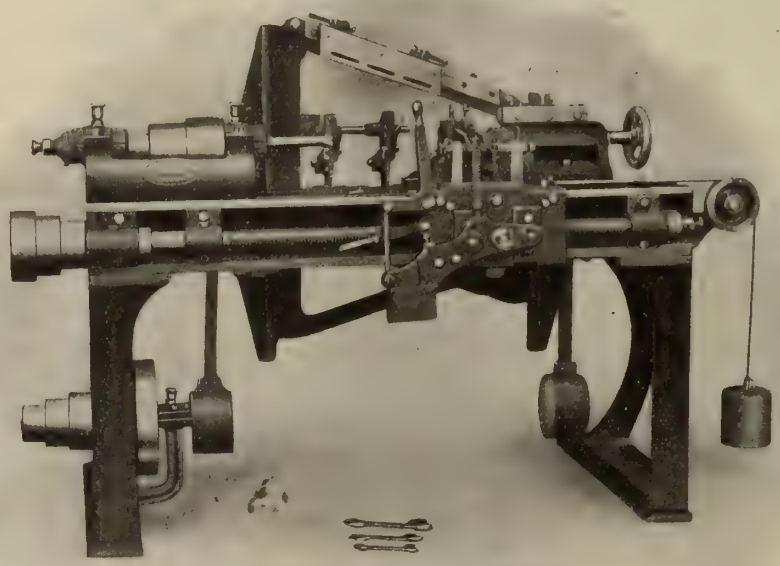


1911 DESIGN

## The WHITE
### Back Knife Lathe

is the machine for
**Duplicate Turnings.**

Just Re-designed.

Made in 5 Sizes, turning up to 6 in. Squares.

Work equal in finish to Hand Turning.

**Greater Accuracy. OUTPUT 3 to 4 times greater.**

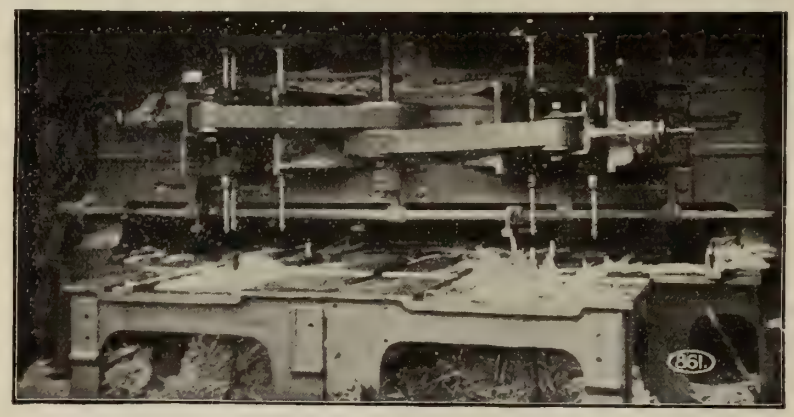
**The WHITE LATHE** has distinctive features of its own, making it the fastest and most reliable Gauge Lathe on the market.

**Let us send you fuller particulars.**

*We are Specialists in*

TURNING and BORING MACHINES.

Our 40 years experience is at your disposal.



# Renold Patent Steel Driving Chains

## OVERCOME TRANSMISSION TROUBLES

Upper illustration shows leather belts driving an adzing and boring machine. Trouble was experienced with the belts.

The lower cut shows the same machine equipped with RENOLD CHAINS which not only overcame the trouble but increased the production over 30% and resulted in the users equipping in a similar manner all their machines.

**Write for catalog and particulars**

# Jones & Glassco
(Registered)

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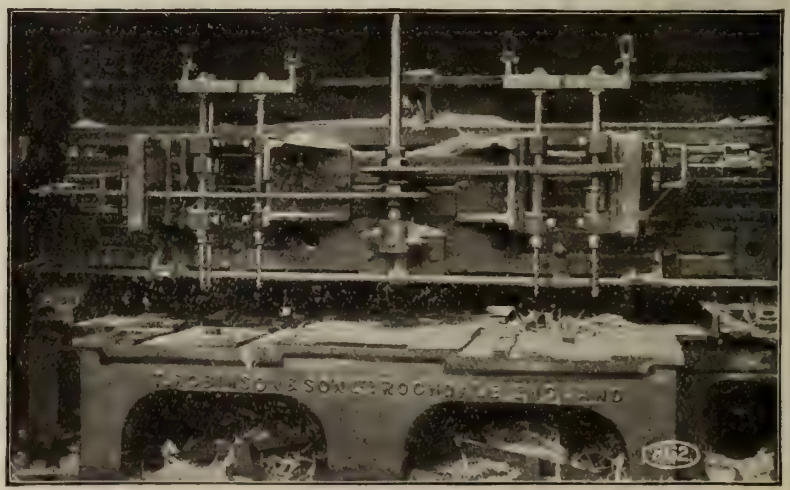
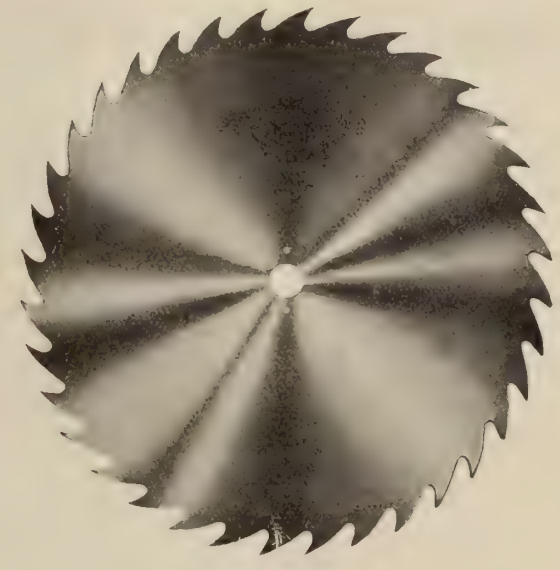
**200 St. Nicholas Bldg., MONTREAL**



# When the Circular Saws in your Planing Mill are



# Simonds Saws

**AND BEAR THIS TRADE MARK**

SIMONDS CANADA SAW COMPANY LTD
VANCOUVER B.C — TRADE MARK — Simond Steel — REGD — ST JOHN. N.B
UNEQUALED IN QUALITY AND UNIFORMITY
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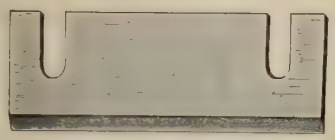
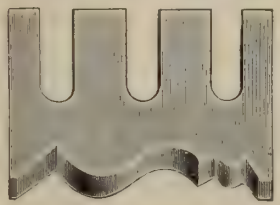
The Guarantee of Quality made by our Company protects you and assures you a product that is the Height of the Saw Making Art.

# Simonds Machine Knives





Are made in all styles and any desired size. Welded, Balanced, and Finished with the greatest care. Orders promptly filled. Standard sizes carried in stock.

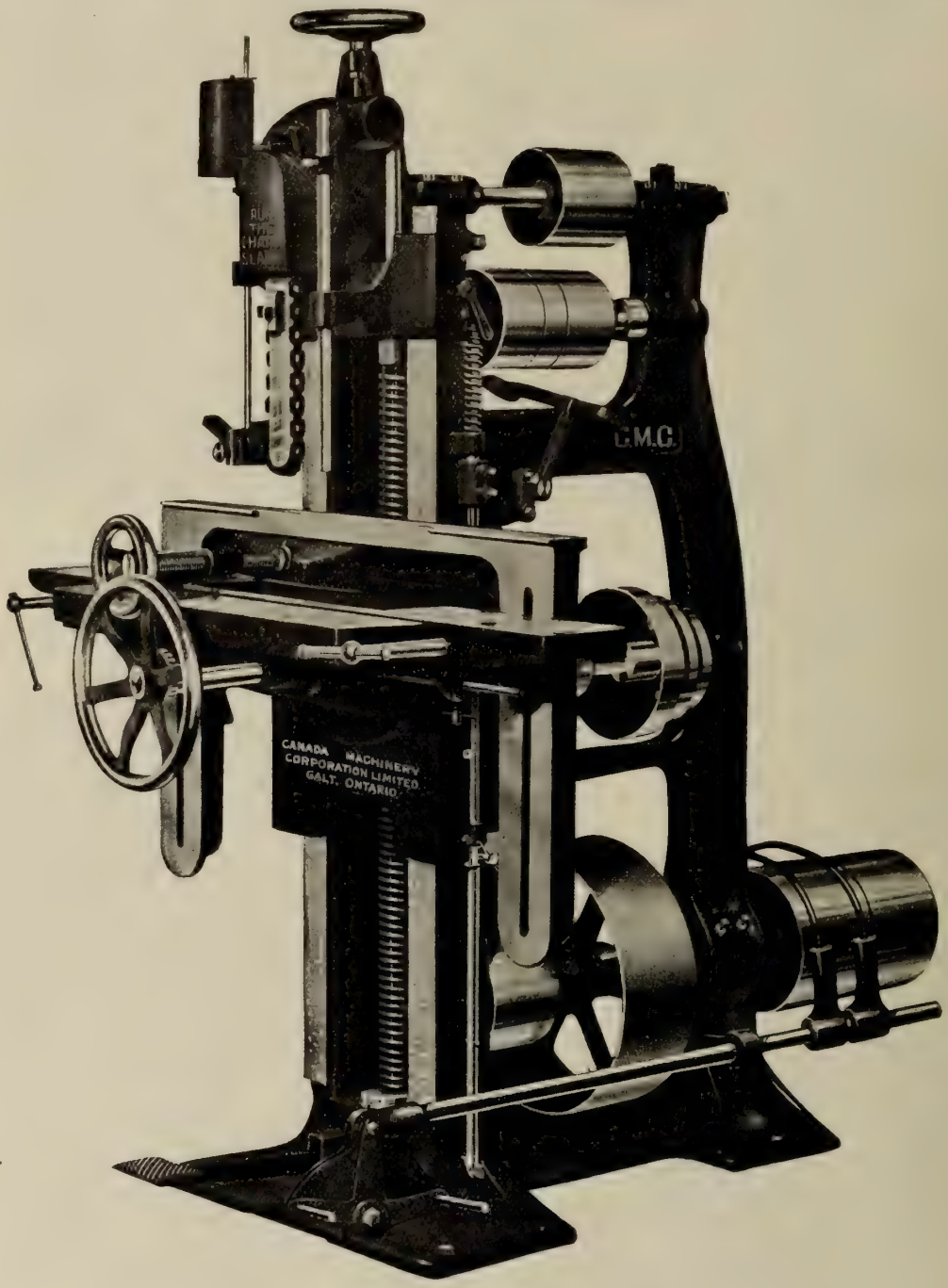
**Factory in Montreal**

## Simonds Canada Saw Co.

**Montreal, Que** **Limited**

**Vancouver, B.C.** **St. John, N.B.**

**CHAIN SAW MORTISER** **C.M.C.** **CHAIN SAW MORTISER**

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**Canada's Only Woodworking Paper**

Published in the interests of Planing Mills, Saw Mills, Furniture and Piano Factories, Implement and Carriage Works, Boxmakers and Coopers, Carpenters and Builders.

The Circulation extends from the Atlantic to the Pacific and covers thoroughly all classes of Woodworkers in this immense territory.

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**Vol. 12** **December, 1912** **No. 6**


## Trade Prospects—Busy Winter Certain

Contractors have no prejudice against winter construction nowadays, and this winter will see all kinds of building work carried on throughout the winter.

Right up to the present moment building operations have been particularly active( and as some important jobs are well on the way now and with others to be started early in the new year, the mill men are naturally looking forward to a continuance of the present good times.

The demand for all classes of buildings particularly residences, owing to the big number of immigrants that poured into the country this year, has kept contractors working to capacity erecting dwellings for their accommodation.

Few people stop to think what the constantly increasing number of immigrants that are yearly pouring into Canada means. Two or three hundred towns have come into existence during the past two or three years. This development is nothing less than marvellous, especially when one takes into consideration that there are cities to-day of from ten to fifteen thousand people where five or six years ago there was but the bare prairie and the lone section post.

This great building acticity of the past few years is likely to continue far into the future, as there is every reason to believe that the increase in population of the next twelve months will be even greater than ever before in the history of this glorious country of ours. No wonder then that all woodworkers are so optimistic about future trade conditions.

## It's Got to be Stopped Sometime, so it Might as Well be Now

In spite of all that has been said and written about veneer work there are still some men engaged in turning our veneered doors and other veneered work who had far better leave that class of mill work alone. Speaking of veneered doors, for instance, a writer in an American exchange made the statement quite recently that no one could expect veneered doors to stand outside weather conditions. We take exception to that statement, because we know where veneered doors may be seen that were made upwards of ten years ago, and so far show no signs whatever of opening at the joints. Of course, these doors, owing to great exposure, are weather beaten, but otherwise the joints and veneer work are absolutely perfect. These doors were made by men who know how to make veneered doors. They must have known, the present condition of their work being an evidence of that. But unfortunately there are men making doors to-day that will fail to stand one years' exposure. If these men could only be made to realize how they are hurting the Canadian trade they would leave the making of all kinds of veneer work to those properly equipped to handle it, and confine themselves to the mill work more within the limits of their factory equipment. In these busy times they can get plenty of it.

The real heavy demand in Canada for veneered doors set in about ten years ago and has remained firm and steady up to the present. This demand is pretty general throughout the country and almost every mill man finds on figuring on house, shop or office work, that more or less veneer work is specified. But instead of sub-letting this work he undertakes to do it himself, and the result is a faulty job. If anyone doubts this let him take a look around, and he will not have far to look, either, to find doors made and fitted less than one year ago to see veneer peeling and the joints opening up.

There is one striking instance to be seen in a certain Canadian city. It is two pairs of church doors fitted but a very short time, and to-day only about one-third of the veneer is in place, the rest having peeled off and broken away, exposing the core, which is also opening up at the joints. This single case mentioned is only one of many others that could be cited. But what's the use? The trade know it and it is surprising that builders and contractors continue to buy doors made by these men who are not able to do work of this nature.

We know of mill men who make slab doors by simply taking four or five pieces of pine for a core and after facing them with veneer, joint the pieces together like a table top. Contrast a door made in this manner with a cross banded door. Is there any need to ask which will stand up best to any kind of weather conditions? We think not. And yet men go on making such doors, and—some men buy them.

This has got to be stopped and it might as well be now. Otherwise the Canadian veneered door trade will be ruined. Moreover, it is only fair to the men who have spent large sums in special machinery and dry-kiln equipment to be allowed to take care of this particular class of mill work that can only be done under satisfactory conditions.

## Do Athletics Pay?

One factory manager said in his experience athletics did not increase the efficiency of his shop. The men became so interested in their sports that they neglected their work. Besides, more or less hard feeling was roused through the failures of some to make the team.

Is this the general experience? Many managers are as enthusiastic for, as this manager was against, athletics and other side activities. It has been their experience that athletics, so far from having an adverse effect on shop efficiency, very actively promoted

# Christmas Greeting with Peace & Plenty for the New Year.

The Publisher & Staff of "Canadian Woodworker."

it. Men, in their common interest in the department or plant baseball team, for instance, bury many of their petty personal grievances, both against one another and against the management, and tend to become united in a good fellowship which infuses itself into everything they do. In heartily co-operating to make their team a success, they unconsciously fall into the habit of co-operating to produce results in their department. Moreover, it is not hard to transmute these intense but friendly interdepartmental rivalries that keen competition on the athletic field engender into corresponding rivalries to make the best showing in production.

An active interest in athletics, and participation on the part of as many as possible, in the opinion of other managers, has also been found greatly to improve the general health of the men, and, of course, any improvement in this respect, however small, is bound to reflect itself in a corresponding increase in efficiency, for good health is the foundation of efficiency.

In some factories the men in charge have found also that as men must have diversion and recreation, it is immensely better for the factory to supply the means than that the men should go elsewhere. Under factory supervision the means of diversion and recreation can be kept healthy and utilized to cement the bond between the workers and the management. At least one manager took up with athletics for this very reason—that it enabled him to attract and hold a better class of men.

A plant fire department, to which membership became an eagerly sought for honor and privilege, was found by another manager to have a marked effect in attracting and holding good men and in causing his employees in general to take a more active interest, a special pride in their establishment, and this actively promotes efficiency.

A factory band was found by another manager to have a similar beneficial effect.

In another plant, manufacturing automobiles, the president and manager has taken a keen interest in the men's play hours, because he realizes that upon how they are spent, depends to no small extent the efficiency of his men at their work. At this plant they have baseball, track and field athletics, football, a band of 50 pieces and a social club. The band is so popular that certain limitations have to be put on the members' leave of absence from work, and the athletic teams play games with teams from all sections. Sometimes the factory attends a game or a meet in body —a thousand strong. Visitors have remarked upon the superior class of men in this factory to those ordinarily found in factories and shops. The president freely credits athletics with having a great deal to do with it. —Factory.

## The Effect and Cost of Changing Men

Nothing is more demoralizing than an irascible foreman or superintendent. The greatest mechanical ability in the world will not offset the effects of a bad temper or favoritism.

When men know that they are likely to be discharged instantly at the whim of a foreman, or publicly berated with choice cuss words if something goes wrong, they do not, and cannot, give their best services. The knowledge that the support of their family can be jeopardized by such a foreman adds more dollars to the cost of production than we are apt to realize.

While a foreman must control his department if we are to hold him responsible for the work, the power to discharge should not be lightly given or used. A man's good record should count in his favor, even if he has made a grievous blunder. For it is well to remember that a man seldom makes the same mistake twice, while a new man would be very apt to do the same thing.

If we remember our own shortcomings in many things, we are not so apt to look for perfection in the men who work for us. It is a mistake to even expect them to know as much as we do about the work, for if they did the chances are we would be working for them.

We must take the best men we can get for the price we feel we can pay and try to show them, or train them to do the work, so as to secure the best results desired. It should be remembered that when we discharge a man we are throwing away all the training we have given him, so far as we are concerned, and that it is better to put up with some failings than to spend the time teaching a new man, and that there is every chance that the next man will not be much, if any, better.

Leaving the welfare of the man out of the question and considering only the cost of producing work, it is better to refrain from changing men as much as possible. The doing of any kind of work day after day brings a certain dexterity which comes in no other way. It develops little kinks or "know how" that cannot always be recorded as "accumulated data," and which a new man must learn from experience in the same way.

Remembering that the object of business is to turn out work at low cost and that rules and discipline are merely means to that end, we must consider the question of changing men more carefully. The old employee often has a value which cannot be expressed in dollars or paid for in a like manner. A kindly consideration for his comfort and well being retains his loyalty and co-operation and pays big dividends on the investment.

## A Good Method

An Eastern piano manufacturer noted that on account of stocking new shipments of lumber in the original piles, few piles were ever completely used up. This plan was resulting in heavy losses, due to the deterioration of the lumber at the bottom of the piles.

This difficulty was solved by separating his lumber into two or more piles. He then limited the height of the piles and made a rule that when the workmen once started to use from one pile, no fresh lumber was to be piled on until it was all used up.

This method required more ground area, but the advantage gained by it more than offset the additional rental charge.

The more moderate height of piles saved in the costs of piling up and unpiling, for the higher the pile the greater these costs and vice versa. There was a further advantage in that this manufacturer is now enabled to keep a perpetual inventory record of his lumber, which under the old method he had been unable to do satisfactorily, because of the difficulty of checking up the record. Now the record can be checked up as soon as a pile is used up.

# Woodworking Machinery and Practice

### An Electrical Wood Sawing Trouble

The application of electricity to factory purposes is not always unattended with difficulty, one of the chief troubles being due to the fact that in many cases it is very difficult to gauge the amount of power taken by a piece of machinery when it is in operation. It is true that the makers in their catalogues often give a figure for the horse-power taken by their machinery of different sizes, but such figures must necessarily be of a more or less approximate value, inasmuch as the work thrown on to an electric motor attached to such machinery varies with the class of work done by the plant, and the kind of material operated upon. Moreover, it is often found in factories that machines are frequently considerably overloaded, the work building up as the output of the factory increases. Hence manufacturers' catalogues are not always to be relied upon in installing electrical machinery. In addition to this there are often peculiarities with respect to the requirements of the drive which may not at first sight be appreciated, with the result that a certain amount of trial and error is necessary before an actually satisfactory run is obtained.

Where due account is not made of such circumstances there is a danger that the owner of the factory may come to premature decisions with regard to the availability of electric power for his purposes; and thus an electrical plant, if it be an innovation to him, may receive a stigma which it does not deserve. Due account should therefore be taken of these factors; and in order to illustrate how very real they are, it will be of interest to describe a difficulty which was experienced in connection with the installation of electric power in a wood-working plant.

In connection with this installation, one of the requirements was to fit an individual drive to a log frame, used for the preliminary breaking up of the timber subsequently used in the factory. It was at first estimated that a 15-h.p. motor would be amply sufficient for the purpose. A shunt-wound machine was therefore fitted, but it was found that after a few hours' work the motor began to run very hot. In addition to this it was found necessary, on starting the motor—which was arranged for a direct belt drive—to pull the band round a little to give the motor a start; and on an ammeter being inserted in the motor circuit it was also discovered that a very excessive current was taken at the start. From the commencement this part of the installation was not satisfactory, and finally it was giving so much trouble that it was thought that the motor was seriously overloaded, and it was taken out and replaced by a 20-h.p. shunt-wound machine.

Even when this change had been effected it was still found that it was necessary to pull the belt for a short time in order to get the motor away, and the starting current was still very high. This pointed to a radical change in the design being necessary, and the 15-h.p. motor which had been scrapped was overhauled; and in order to overcome the lack of initial torque the field windings were compounded. This motor was then put back in place of the 20-h.p. machine, and it was found on switching in that it started right away without assistance, and also without the excessive starting current which was before noticed. Evidently in this case the trouble had been due to the fact that as the log frame was in the nature of a dead load on the motor from the very commencement of operations, and also as the saw was a reciprocating and not a circular one, the effort of the motor in starting up against the load and in getting the saw over its dead centre was too much for shunt-wound machine. Hence it had a very weak field in starting, and a low torque. The compounding of the field windings effected the removal of all this trouble.

This is a case where, if the owner of the factory had been of a hasty disposition, he might have condemned the application of electric power for heavy purposes on the strength of the initial difficulty in starting up. But subsequent experience showed that very great economies were gained by using electricity in this particular instance, and the incident therefore goes to show that hasty judgment should not be given on motors of this sort until the necessary experiments incidental to every new installation have been tried.—"Electrical Industries."

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### Advantages of Built Up Stock

Some few years ago the average buyer of furniture seemed to believe that "veneered furniture" was synonymous for "cheap furniture," and that only furniture made of all solid stock represented quality and value.

Investigation proves, however, that just the reverse is true, and that in the very finest furniture manufactured veneered stock is used. As the best proof of this statement, we ask those who may be inclined to doubt it, to examine closely pieces of antique furniture, furniture manufactured a hundred, or two or three hundred years ago. Is it solid or is it veneered? In almost every instance we believe the investigator will find that the tops, fronts, end panels, posts and frames—in fact, nearly all of those parts where durability, reliability and a beautiful effect as to color and figure are required—are veneered.

The question may be asked why veneering should be used when, according to the common understanding, solid stock is so far superior. The reason in part is that solid stock, built up into furniture with dowels, glue joints, mortises, etc., would never stand the test of time for the following reasons: All woods are subject to changes from heat and cold and moisture variations which cause contraction and expansion; all solid woods have a tendency to take up moisture, then dry out again, eventually causing the glue joints to open, the dowels to come loose, the mortises to shrink, which results in the falling apart of that particular piece of furniture.

Not so with veneered or built up stock, which is made three, five and, in some instances, seven ply, each being so crossed and laid contra-wise to the ply next to it, that there are no joints to shrink and come open. For the benefit of those who may not understand what multiple-ply stock is, we beg to explain that each top, front, panel, etc., going into veneered furniture is glued up with different and separate plies of wood, each ply of which is laid at right angles to the one next to it.

For example: In veneering a 5-ply top for a dresser, sideboard or table, say a 48 in. x 24 in. top, a piece of veneer 49 in. long and 25 in. wide is first laid lengthcovered on each side with glue, is put on; then the core or centre 49 in. long by 25 in. wide is laid on the cross veneer. On the core is laid another cross ve-

neer 49 in. long by 25 in. wide, covered on each side with glue, and then is laid the last or face veneer, with the grain running the 49 in. way.

The entire top is then put under hydraulic pressure and remains there until the glue has thoroughly set. This operation usually requires from twenty-four to forty-eight hours, and makes the entire five plies as one solid piece of wood, except that because of the cross plies it is impossible to split a 5-ply veneered top with an axe, and the same is true also of a thin 3/16 in. or ¼ in. 3-ply panel. Each ply being laid contrawise to the one next to it, makes a strong, reinforced lamination with fully as much strength and resistance against splitting as will be found in a piece of solid wood of from one to one and a half inch thickness.

So much for strength and durability; now for beauty of figure and uniformity of color.

In using solid stock it is impossible to select all the pieces that go to make up a piece of furniture of the same figure, color and texture, for the reason that, in sawing thick lumber, no effort is made to keep the boards together, and in the average car of rough lumber may be a lot of from one to two thousand or more different boards, cut from a hundred or more different trees, each tree probably grown in a different kind of soil, each soil growing wood of different texture and figure.

How about veneers? Let us take, for instance, our native white oak and the process of manufacturing it into quartered oak veneers.

First, from a whole tract of timber are selected only those trees which show tall, straight, unblemished trunks of large and even growth. These trees are felled, cut into logs, taken to the mill, where each log is cut into halves, each half into quarters and each quarter into eighths, great care being taken to divide the quarters exactly. Each log thus produces eight flitches. Then from the eighth of a log each side is cut until the desired figure is shown; a twenty-four inch log making flitches eight inches wide; a twenty-six inch log, ten inches wide; and a thirty-six inch log, flitches fifteen inches in width. Thus it is really understood that there is much waste in sawing flitches for high-grade veneers. A properly sawn flitch should be cut from 2 ½in. to 3 in. thick.

Next the flitches are taken to the veneer mill to be cut into veneers. A veneer saw is composed of fourteen segments and is ground very thin so there will be the least possible waste in sawing. The segments are fastened with counter sunk screws to heavy iron flanges or discs, making the complete saw about seventy-two inches in diameter.

The veneers are cut to the thickness desired, the standard thickness in oak being 1/20 inch to 1/16, though for special work thicker stock is often used.

Each sheet or piece of veneer is numbered as it comes from the veneer saw, and all pieces of each flitch are kept together in the exact order in which they are sawn.

After being sawn, the flitches are taken to the dry-kiln, and when thoroughly kiln-dried, all sheets are inspected, measured, and the entire number of pieces of each flitch tied together just as they came from the saw, and are then ready for the manufacturer of veneered tops, panels, etc.

Now a word as regards the selection of veneers and the proper handling and care of same preparatory to gluing up into tops and panels.

All veneers should be carefully selected for their color and texture, as well as for figure, as many well figured veneers are unfit for use in the manufacture of high-grade built-up stock, because of, first: A soft, spongy texture, which has a tendency to take up too much color in staining and looks flat under the finish, and second: Because of alternation of smooth, hard streaks with streaks of a softer texture, when veneer shows light and dark streaks after staining and is quite as undesirable as the soft, spongy woods.

At one time, in quartered oak especially, the demand was for a large splashy figure, though at this writing we find a number of furniture manufacturers, especially those who make the better grades of furniture, who call for a more modest display of figure, and who are paying more attention to color and texture. This, we believe, should be the first requirement in veneers used in building up furniture tops, panels, etc., as beyond question the most artistic results are obtained from veneer of a good even figure and texture rather than from the large splashy figured stock, which looks as though the figure was put on with a whitewash brush and then allowed to spread.

Besides the quartered oak, there is a very considerable demand for mahogany, red gum, curly birch, birdseye maple and Circassian walnut. The latter wood, we believe, is advancing steadily in favor for use in the higher grades of furniture, and each succeeding season finds more of it being made into veneer and sold all over the United States. Red gum is also becoming very popular and in the quartered cut stock especially some beautiful and artistic effects are obtained. Many concerns manufacturing high-grade furniture only are making up designs, especially in bedroom suites, which sell at fully as high prices as do the oak, mahogany and other fancy woods.

After the selection of veneers for color, texture, figure, etc., comes the process of getting ready for the glue room.

Knowing the tendency of veneers to absorb moisture while in bulk, not only in the fancy woods, but also the cheap rotary cut stock which is used for cross banding, backs, etc., great care should be taken to see that such stock is kept in a uniformly dry place, and we would advise in addition that all veneer stock be carefully re-dried before it is glued up into the finished top or panel.

In the plant of the New Albany Veneering Company at New Albany, Ind., all veneers are kept in a brick and concrete building, in which is located a Sturtevant heating and drying system, which system eliminates from this department all dampness which might otherwise accumulate. In addition to this, each separate sheet of veneer for each order is carefully redried in a Proctor girt conveyor dryer, so that there is no possibility of damp or green stock being used. It is the use of such stock which is usually the cause of blisters, loose veneers, open joints, etc.

In the case of the face veneer stock, which is kept together in flitches, the entire flitch is laid on an inspection table and each sheet is carefully remeasured and re-inspected and then cut to the required lengths for the different orders. They are then taken to the clipping machine and all defects, including sap and plain edges, are clipped off; after which the stock is ready for the re-drying machine. From the dryer it is taken to the veneer jointer and the edges of each sheet jointed; then to another clipper where it is cut to the correct widths for the particular order for which it is finally glued; then to the matching table, where all

sheets of veneer are perfectly matched for both figure and color.

Now it is ready for the splicing or taping machine. This machine splices two or more sheets together with gummed paper tape, making an almost invisible joint, thus giving the finished top the appearance of being built up from one solid piece of wood.

After this operation is completed, the veneer is taken to the glue room, where the edges of each taped joint are glued together on a special gluing machine, thus preventing absolutely open joints or hair lines, which are otherwise sometimes apparent in veneered work. After the process of gluing the joints, the veneer is glued on the different plies as previously explained.

After remaining in the veneer presses for from twenty-four to forty-eight hours, the pressure is released, the tops or panels taken out and stacked up with inch strips between each top and panel, so placed as to hold the stock entirely flat and straight, and the stock is allowed to remain on sticks long enough to thoroughly dry out the glue moisture, after which the stock is taken from the sticks, placed on trucks and is then ready for the dimension saws. From the dimension saws, it progresses to the triple drum sanders, then to the belt sanders, after which it is ready for the packing room.

In this department an expert veneer man makes the final inspection, and if the stock shows up perfect as to matching, gluing and the other details of manufacture, both the tops and panels are carefully crated with the faces together, all edges covered, and in this condition are shipped to the furniture manufacturer who cuts and moulds the tops to the particular shape desired, places them on a dresser, sideboard, table or whatever piece of furniture they are made for, and after being resanded and polished with very fine paper this last operation usually being done by hand, the entire piece of furniture is ready for the finishing room.

From the finishing room it goes to the stock room, then to the packing room, and finally to the dealer, who in turn sells it to his customer, for whose benefit and information this article is written. When he or she considers and ponders carefully the multitudinous and various methods of manufacture through which the different parts of a veneered top, panel, glass frame or drawer front must pass, a fuller appreciation of the following fact will be gained: That veneered furniture costs more, lasts longer and is more beautiful in every particular than is furniture made from solid stock, with this proviso, of course, that the veneering is done in a plant fully and especially equipped for this kind of work, and that the process of manufacture is carried on by competent and experienced labor, and that all materials, such as glue, veneer, lumber, etc., are carefully selected and properly prepared before being built up into the finished article.

By E. V. Knight, reprinted from
Hardwood Record.

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There is something materially wrong with the saw that needs water while at work. To free the teeth of gum or resin three drops of turpentine or paraffin are of more use than three gallons of water. Some operators use water to prevent the heating of saws while at work. Where such makeshift methods are practiced it simply indicates the defective condition of the tools and a deplorable lack of efficiency on the part of the saw trimmer.

**Mistakes in the Factory**

By James Macgregor

Mistakes will happen in the best regulated factories, and things will occasionally be made wrong as long as frail mortals attempt to make them.

There are mistakes of the head and mistakes of the hand. Some are due to a lack of common sense or lack of judgment, some to carelessness; others may be considered unavoidable, so that, taken altogether, about the best that can be expected, even with the most vigilant oversight, is to reduce them to a minimum.

If work is expected to come out right, it must be started right. Order clerks are prone to assume that the factory knows just how every conceivable thing ought to be made, and invite errors by failing to write out their orders clearly and distinctly, so that there can be no possibility of a wrong interpretation of their meaning.

Mistakes arising from this cause are usually serious and expensive. There is no way to discover such errors until the job is in the hands of the customer—to be rejected. And it, in most cases, represents a complete loss, for which the factory can in no way be held responsible.

As a precaution against making things wrong in the factory, it is necessary that the foreman read his orders carefully, so that there may be no misunderstanding or confusion of figures. Orders sometimes reach the factory containing contradictory measurements, or something very unusual, apparently out of line with the general run of things. The clear-headed foreman can readily detect these suspicious-looking orders, and prevent mistakes by having them corrected before work is begun. Verbal changes in an order should never be accepted; nothing should be guessed or taken for granted. As a rule, the shop foreman is not an expert mind reader, and should insist that his instructions are properly written out in full.

Mistakes in material and workmanship are clearly up to the foreman of the department in which they occur. Any attempt to shift the responsibility on the men, or the common excuse, "I can't see every piece," or "I told them to do this and that," is worse than none, and merely shows a lack of the essential qualifications of a supervisor.

To get a job under way, the usual method is to make out a cutting bill of materials. The habit of merely making a list of rough cutting sizes and thresh-ing out the various details as the work goes along, is surely paving the way for mistakes.

Printed forms suited to the work should be used, properly ruled and numbered for each item, with plenty of room for a description of the operations on each piece, showing size, kind of groove, rebate, sticking, or whatever it may be, so that each operator knows exactly just what is required.

In most factories certain standard sizes and methods are usually followed. If an unusual size or operation becomes necessary on any particular piece, the item should be marked on the bill in some conspicuous manner, either in large letters or with a blue pencil. Anything that cannot fail to attract the attention of the workman to some peculiarity in the work will often prevent an error.

It is a peculair fact that work of a complicated character is usually freer from errors than that of a more simple nature. This may be accounted for on the theory that the person in charge of a difficult job is impressed with the possibility of error and gives

more strict attention to supervising the difficult operations, while very serious mistakes are apt to occur upon a large number of simple parts through some trivial lack of oversight.

A confused and generally trashy condition of a department reflects the character of the foreman; it breeds careless habits among the men, multiplies the possibility of errors and keeps everybody in hot water in a vain effort to prevent them. On the other hand, the wise foreman, whose department is conducted in a systematic and orderly manner, has little difficulty in turning out accurate work.

To raise a row over a mistake is the worst possible preventative, and no more reasonable than it would be to fuss with a man for cutting his hand or breaking his leg. Men are generally averse to doing work over again—to rectify mistakes—for the reason that they are seldom made intentionally. Men sometimes think they are doing a thing right when they do it wrong, either from the lack of instruction or some misunderstanding.

The intelligent foreman can head off possible mistakes by planning out the clearest and simplest ways of doing things; by training his men to do their work right; by cultivating the art of supervision; the faculty of detecting errors; the ability to scent danger. For of all the numerous and varied qualifications expected of the foreman or supervisor, none is quite so important as a "nosy" disposition—the gift of seeing things.

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### How Should Knives in Round Cylinders be Ground?

There are, of course, at least two answers to that question. Some remove the knives every time grinding is necessary, while the majority of us prefer to grind right in the head. The latter way is unquestionably the better, for more reasons than one.

In the first place, a great deal of time is lost in removing the knives every time you want to sharpen them. And, although you may have an extra set on hand that you can insert, you have to go through the performance of setting each knife, and we all know that accuracy is very essential in order to get each knife to make its share of the cut.

Furthermore, in placing the thin knives on the automatic grinder, they are clamped and undergo a strain that is relieved when taken off the grined bar. Now, then, by placing them in the cutter head they are again clamped, but by a different method, and the strain put upon them forces them to take a different shape than when on the automatic grinder bar. The effect of this is obvious. Your knife is forced to take a different position, and if you run the jointer over it while the head is revolving you will find that some parts of the knife have been touched, while others have not. Then what is the conclusion? Your knives are ground crookedly. There is only one remedy, and that is, grind your knives when in the clamped position in the cutter head. You will find that less of the knife is ground away by this method. Your knives will last longer. And last, but not least, you will have each knife making its share of the cut, and the finish of your stock is better.—Berlin Quality.

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### Starting and Average Loads on Electric Motors

Thanks to some of the more observant and thoughtful men among those in charge of machine shops, says Veritas, in "Timber and Woodworking Machinery," efforts to seek information and guidance in respect of electrical motor equipment are reaping a reward of a tangible and valuable nature.

But one thing seems patent to me, and that is, that the machine men who could or would do anything for the benefit of their benighted brethren were handicapped, inasmuch as neither the knowledge or the material were at hand to steer them, and this particularly in the matter of the starting and the average loads on electric motors, especially those employed in driving woodworking machinery.

Little now need be said of the errors that have been made in respect to the installation of motors in timber conversion, due to the absence of experience as to what the various tools and machines require in the shape of power in motion to drive them, and the prevalent but fatal mistake of trusting too much to overload allowance.

In the ordinary course of electric motor design and construction, the overload is put at 25 per cent. for two hours, and 50 per cent. momentarily. Now in apportioning power for say, a 12 x 5 in. four-cutter, anyone would think that 15 horse-power should be ample, but I have found that with a 20-horse machine the indicator points to 25—26 h.p. at starting up; this on the 20-h.p. motor is the 25 per cent. overload straight away, but what about a 15 h.p.? It is simply clapping on 66 per cent. to 73 per cent., a strain which only the very best of machines can possibly stand.

The popularizing of the electric drive, wherever it may be deemed suitable, is, however, serving to teach something in the way of getting at starting and average loads, and more recently demand indicators have been introduced, which are a very considerable help to the foreman and works manager who will take the trouble to understand and use them, for his own information and guidance, no less than for the benefit of his employers.

In the earlier types of demand indicators these instruments flew up at starting, and stuck there, so that in calculating out the average load, the starting full or even overload was more often taken as the normal, much to the confusion of everyone, considerable in the way of loss to the employers, and corresponding gain to the supply companies or municipalities, as the case may be.

The ammeter is quite all right for revealing the fluctuations of starting and working loads, and affords ample in the way of guidance as to whether or no motors may be too, or insufficiently powerful; but the foreman cannot stand by all day watching the pointer dance about the dial.

An observant works manager who keeps a steadfast eye on possible leakage, and consequent loss to his employers, has recorded some readings from a maximum demand indicator which registers the highest for 15 consecutive minutes.

The total horse-power installed is 48, and the voltage 410 direct current. In one instance the reading was 54 kilowatts thus, $\frac{54 \times 355.9}{746} = 25.76$ h.p. out of the total 48 h.p. laid down. Turning this round we get $355.9 \times 54 = 19218.6 \div 410 = 46.87$ amperes.

25.76 out of a total of 48-h.p. reveals a load factor of 53.45 per cent., but, even so, the current bill is not out of the way. The price charged is 1d. a unit, flat rate, and the total units consumed in a 50-hour week is 688, or 13¾d. per hour.

The point is that in joinery and the like works the starting load is heavy, but the average load must of

necessity come out in comparison to the total horsepower installed, by reason of the fact that machines cannot be kept at one particular class of work for any great length of time, and were it even so, stoppages, for changing saws and cutters, take up some time in the best organized shops.

Still, taking a load-factor of 25.76, or roughly, say, 53—54 per cent., 13¾d. an hour is not bad for 48 horse power.

### The Chain-belt Drive

It is pretty common knowledge in mechanical circles that the new noiseless chain of the sprocket type is coming strong now, and taking the place of gear in many places. But there is another type of chain drive that may not be getting as much attention as it might; that is, the link or chain-belt drive. The older heads in the business can easily recall when the link belt had its run—the belt made of leather links—and then waned in popularity. Now we have a new type of link belt, one made of metal links, running noiselessly over cut-gear-like sprocket wheels. The link-belt people picture this type in their advertising as driving a blower. The writer saw one recently driving from an electric motor to a sticker. It was a case where they wanted the motor close up to the countershaft of the sticker, and figured that the drive was too short for a leather belt drive to work well, so a chain was tried; and it is working nicely. It matters not whether a leather belt would have done the work or not. There is perhaps less than three feet between the motor and the counter. The reach is made with a chain belt five inches wide working over a cut sprocket wheel at the motor, that is only about two inches in diameter, to one about five inches on the sticker counter. And a strange thing about it is that this link-chain belt makes less noise than the leather cutter-head belts on the machine. It runs practically noiseless, and there certainly is no slip to it. It looks like the ideal thing to drive a fan—and perhaps for many other special wood-working drives.

### The Patching of Belts

I have often seen a heavy belt patched with a piece of lighter belt. When the belt is running at a low speed there is little or no trouble, but when the belt is a fast one there is trouble aplenty.

One of our machines has a finishing head that runs fast on the main cylinder and is driven from the end of that. The belt has a travel of over 6,000 feet a minute, consequently is a hard belt to keep up, needing frequent renewals.

On the occasion of a recent break my helper put a short piece of single 3-inch belt in the double belt for a patch. It did not take long for the belt to enter an emphatic protest against being made to work with unsuitable company.

It was a good object lesson, and I feel safe to say it will not be tried again with that belt.

### Demand for Turned Work Increasing

We see more turned work now than formerly, especially in furniture, though there is also a fair addition of it to mill work. Much of this is round and truly turned according to the older interpretation of the term, but most of the new turnings that find favor lately are products of the new turning machines that make a variety of shapes, including octagons. This type of turning seems to be replacing quite extensively the old turned table leg, and entering into post work, not only for beds, but for much other furniture work. It looks like ornamental features of this kind are taking the place, to some extent at least, of shaped work that formerly was worked out on the band saw and shaper. There are so many different ideas in and kinds of this work that it is difficult to class any one as dominant or distinctive. The indications, however, are that this demand is just beginning and that we will have even more of it in the near future.

### Does It Pay?

We have read from time to time articles on whether it pays to have a machine stand idle. Of course, we will say in most cases it does pay. For instance, in case of emergency to set up quickly and run out small orders, it pays to have a machine for easy access, in preference to tearing up on a long run in the middle of the job that has been started on a carload lot of some pattern of molding or casing, or whatever the run might be.

I have been employed by a firm for the past two years that does a large retail lumber, sash and door business and has five different distributing yards in the various portions of the city of a half million population, so one can readily imagine the large volume of business this firm handles. We have four molding-machines to take care of the moldings, and I can say that, generally speaking, three molding machines can handle the output of moldings very satisfactorily. But it is an easy matter to shift from one machine to another to run out a special order while a long run is in progress on any one machine that might happen to be set up for it.

We all know that in changing a molder more or less time is lost from one run to another. When a long run is not disturbed there is no time lost in changing this machine on and off the run, so it is far better to have the machine that is already set up for a long run stand idle for a half hour or so than lose time by changing off and on the long run.

When I first located with this concern we only had two molders and thought we had ample capacity; but on the other hand, we kept them continually overrun with work and had a congestion of stock and trucks of all kinds, so one would hardly know which to start first. The president of the concern thought we had ample capacity to handle the output of moldings, but upon consideration he finally decided to install the third molding machine, and found it to so much better advantage that the business paid much better. Then we began to take on more special work, which required more numerous changes, and soon saw it advantageous to install the fourth molding machine. The output is not costing nearly so much, there is not the continual congestion of stock and trucks as before, there is greater satisfaction all around, and we all know there is much more pleasant relations between the foreman and the office when the work is coming through promptly and there are no delays.

There are many large wholesale planing mills now that have a molder for each stock pattern of molding made, and never change any machine from one run to another except with one or two machines, designated to handle all special orders that come in. They simply shift their help from one machine to another as the stock comes in, thereby losing no time in changing any machine except when knives need grinding or truing up slightly. It certainly must be a paying

proposition or the larger concerns would not adopt such methods in these days of keen competition and high prices, when all are trying to reduce the cost of production. If others have anything to say along this line we would be very glad to hear it.—J. W. S., Exchange.

### Dressing Lumber Before Drying

They are springing a new idea in the hardwood world. It consists essentially in dressing lumber before it goes into the kiln for the final drying. Let us suppose lumber has been standing in pile for three months, or for any period longer than that. Before it is put through the kiln for the final drying it is taken to the surfacing planer and dressed. The advantage claimed for the idea is that it takes off the dry, harsh outside and cuts through to fresh, open pores, so that drying may be easy and natural; and the remaining moisture on the inside can more easily be driven out by heat. There is not much question but this will make the final drying easier and more thorough, but whether or not it will leave the lumber in better shape is another question. We know that green lumber does not dress smoothly, but this lumber is presumably dry enough on the outside to dress smoothly. It is, then, more a question of how smooth it will stay in the final drying out, and how much it may check and honeycomb. The practice is not likely to become universal, yet it may be found useful in special cases—in the dressing of work where a high order of finish is not essential, for example. And it may even enter into work of fine finish where it is figured that the subsequent dressing will give the finish wanted—in the sizing and drying of furniture dimension stock, say. But won't a little steam bath serve the same purpose?

### The Weight of Steam for Dry Kilns

The weight of steam for this purpose is commonly based upon the type of kiln and the square feet of heating surface which it contains. For "radiator kilns" the condensation will vary from about 0.25 to 0.4 pounds per hour per square foot of surface, and in "blower kilns" it will run from 0.5 to 0.8 pounds per hour. Sometimes the steam requirements are based upon the quantity of lumber to be dried in a given time. This method is not very reliable, as the length of time, the kind of wood, etc., enter into the problem and all have a considerable variation. Under average conditions this will run from 2,000 to 3,000 pounds of steam for each 1,000 feet of the more common kinds of lumber.

### Comparing Available Exhaust and Heat Requirements

Unless there is some way of storing the heat from exhaust steam, any surplus which may be produced at any part of the day must be thrown away, and is therefore of no value. This makes it necessary to make a careful comparison of the exhaust produced and the heat required for each hour in the day, in order to determine how much of the total exhaust is available and how much surplus or waste. The total produced in each twenty-four hours may fall short of that required for heating purposes and still come at such a time that a considerable portion must be wasted.

### The Machine Man on Thin Knives

While going through the plant of a wood-working machinery concern recently there was found on the floor, in process of construction, planers using the regulation "laid" knives on square heads, and other planers with round heads using thin steel knives. This put the question of knives in mind, so the machinery man was asked for an opinion as to the future—whether or not it was to be all thin steel knives. He gave the matter quite serious thought before answering, then said he rather believed we would all come to using the thin steel knife in time, but just how long the time would be was more than he could say. He gave as his opinion that the thin knife, properly handled, will run lighter than the heavy laid knife, though it does not always do so now when it is blunted by jointing. He thinks we will get the setting and grinding of the thin knives to a point soon where they will be easier to handle and will run lighter. At present they and the heads that go with them cost enough more to hold them back a little, but he thinks they will gradually gain ground until the round head and the thin steel knife will be pretty generally, if not exclusively, used. Protection from fire is a first consideration in building, one factory owner states. Although a building and its contents may be fully covered by insurance, its owner cannot protect himself in event of fire, against failure to complete orders of contracts; loss in the efficiency of his organization, since skilled operators will accept positions with rival concerns during a shut down of the burned out plant; loss of trade, because no new business can be contracted until rebuilding is started.

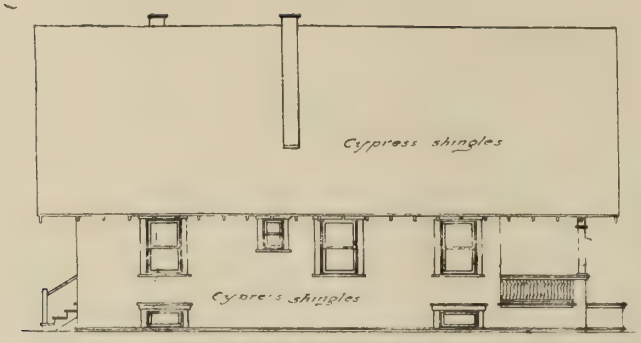
### Spontaneous Combustion versus Sprinklers

A midnight fire in the waste house of the Whitman Mills was put out by two Grinnell automatic sprinklers before the watchman knew there was any trouble. He promptly shut off the water and replaced the heads, the total loss being limited to $90. The cause was spontaneous combustion.

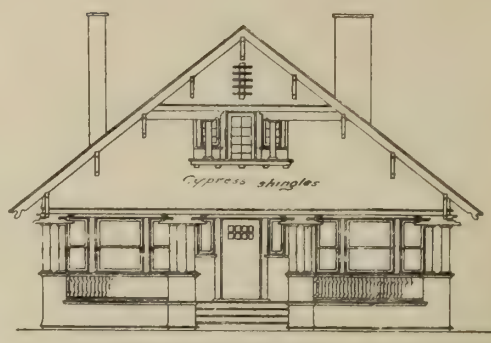
Spontaneous combustion was the cause of a recent fire in the carpenter shop of the American Thread Co.; one Grinnell sprinkler operated and kept the fire from spreading beyond the small pile of shavings in which it originated. The total loss was less than $500. Considering the nature of material which was burning and the possibilities which it contained of making a very bad fire, the prompt response of the automatic sprinkler was highly appreciated by the management.

Watching an operator feed two boards of varying width through a 32-inch planer, a mill owner observed that to do this right and keep the bed of the planer in good condition the boards should be fed one at each end of knives, as enough boards will overlap to wear the centre of the bed sufficiently to keep it even with the sides. When stock is always fed in centre of bed, the bed wears hollow, and so do the pressure-bars, in which condition they cannot do good work.

Keep the nuts screwed up tightly, but never screw them tighter than necessary to accomplish the desired result. Cultivate the sense of feel in this matter. It is the only guide. The setting of a nut calls for a nicety of discretion which can be arrived at only by practice and observation, and which can never be imparted.




SIDE ELEVATION




FRONT ELEVATION

SYMBOLS

- LIGHT OUTLET
- FULL GAS OUTLET
- SWITCH
- (B) RANGE BOILER

# A Cyp

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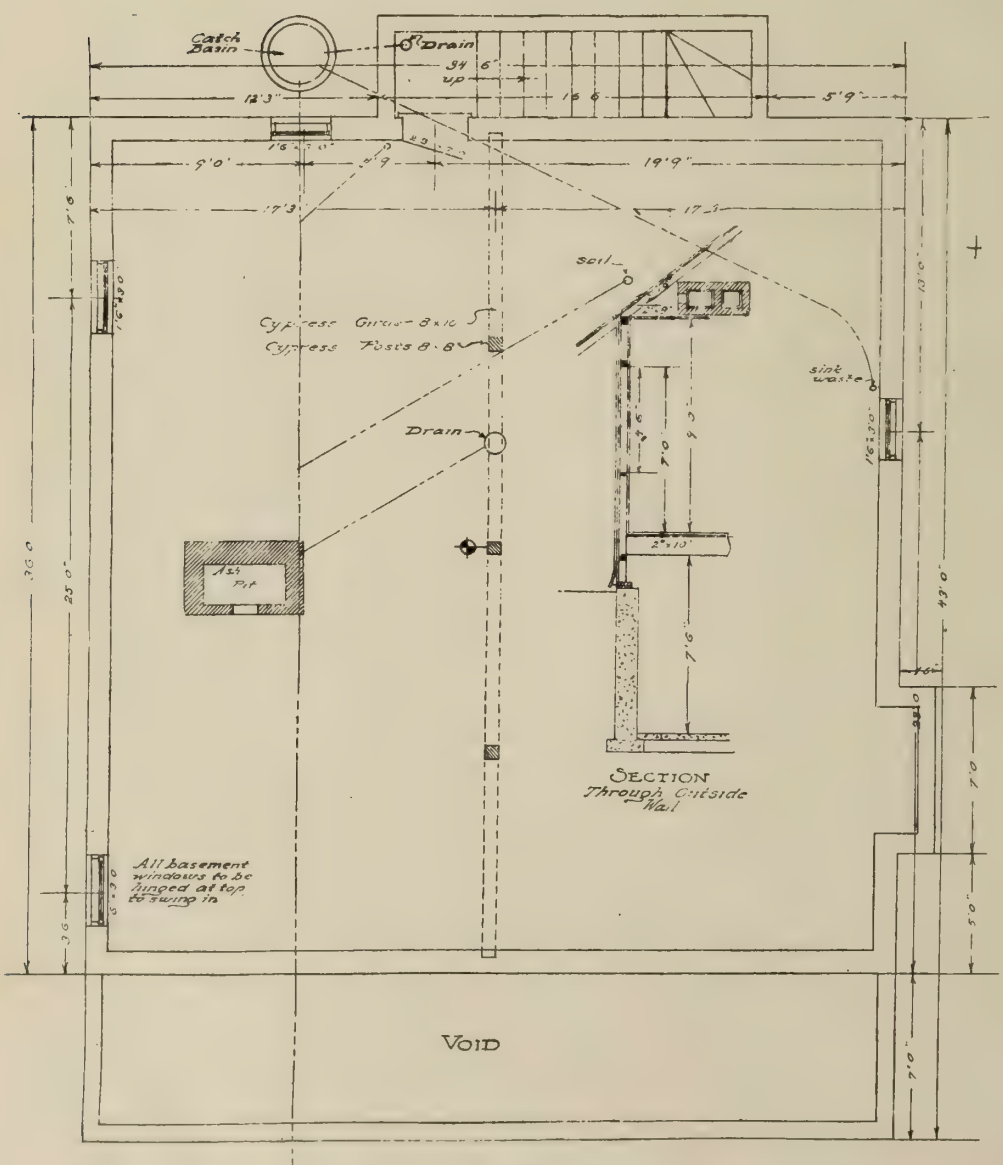
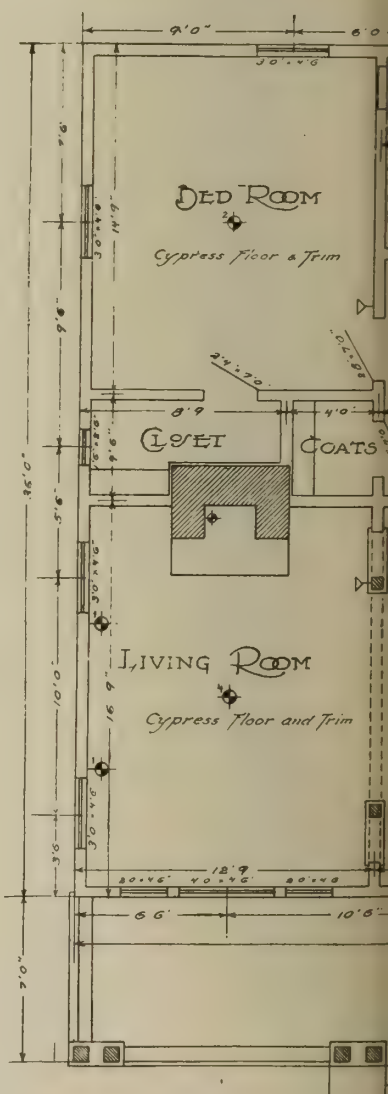



BASEMENT PLAN

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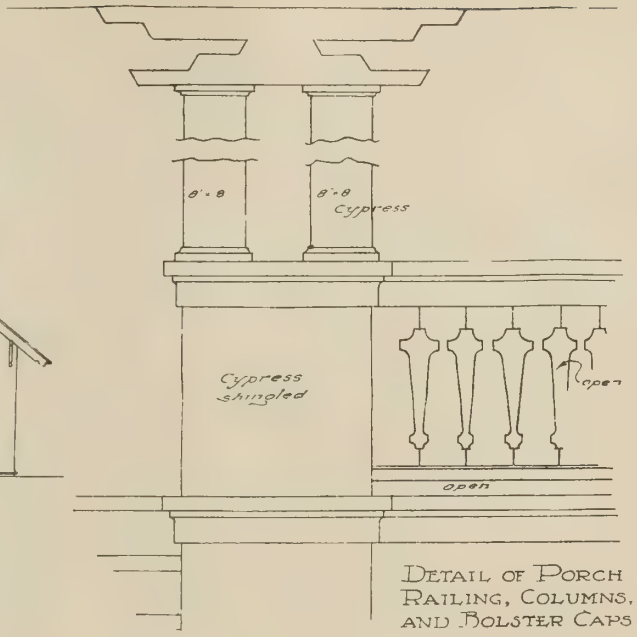
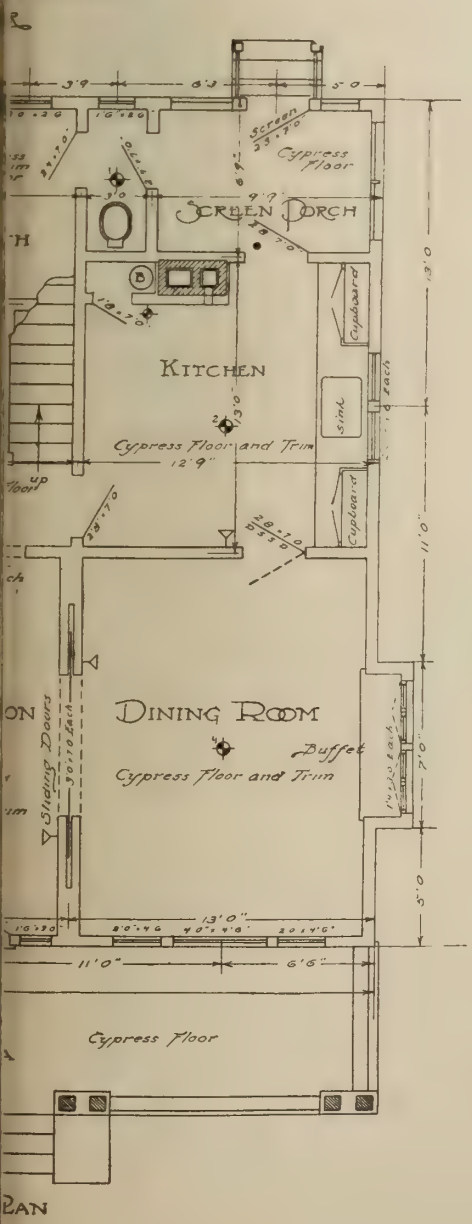
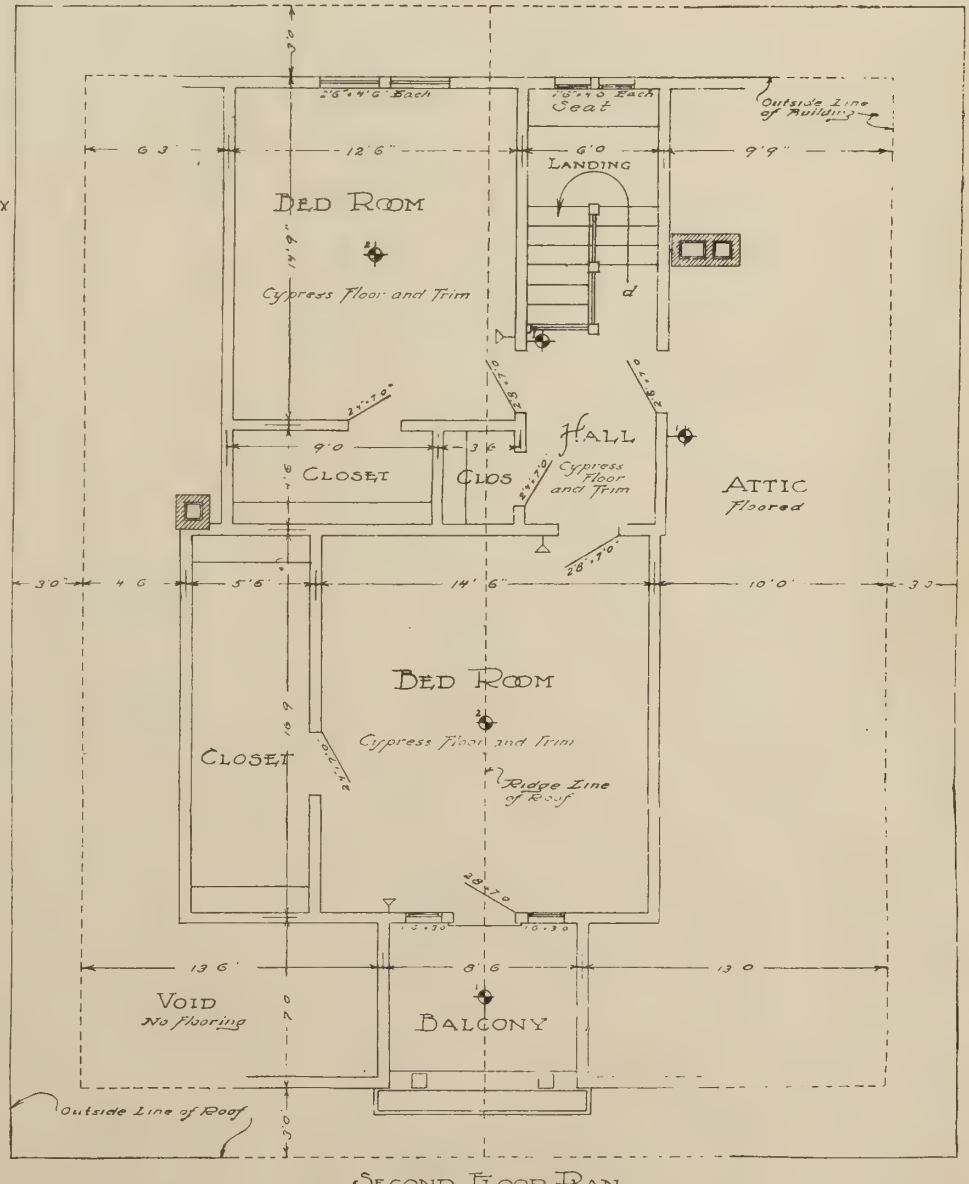



Detail of Porch Railing, Columns, and Bolster Caps

# Bungalow

WILSON




Second Floor Plan

# A Cypress Bungalow

The plans and details shown on another page of this paper are of a charming bungalow. The scale is ⅛ to 1 ft. for floor plan; 1/16 to 1 ft. elevations; ½ to 1 ft. details..

## SPECIFICATIONS

### Masonry

**Excavation.**—Excavate for all walls and piers to depth indicated, and fill in solidly around same upon completion. Excavate for basement as shown. Top soil to be removed to rear of lot, and to be uniformly graded over the entire lot at completion of the work.

**Mortar, Cement, Etc.**—All concrete for foundation walls, footings of piers, and rough work of cement walks and basement floor to be composed of one part best Portland cement to three parts clean sharp sand and five parts clean broken stone. Mix thoroughly before wetting. Lay four feet wide cement walk to front porch and two feet wide walk around to screen porch and basement steps. All walks to be laid on bed of clean cinders or broken stone, and to be four inches thick, including 1-inch top coat composed of equal parts cement and sand. Basement floor also to be four inches thisk laid on well prepared bed of clean cinders. Pitch floor to drain as shown. Basement rear stairs and area walls and floor to be constructed in similar manner. Mortar for rough brick work to be composed of one barrel best quality lime to one yard of clean, sharp sand. Mortar for exposed brick work to be colored to suit owner. Chimney caps to be of cement finished same as floors.

**Brick Work.**—Build chimneys where shown, of best hard burned common brick. Place six-inch terra cotta thimble, four feet from kitchen floor. Place 8-inch terra cotta thimble 7 feet from basement floor. Build mantel as shown, of pressed brick selected by owner. Build ash pit as shown, with chute from hearth and set cast iron clean out at base. All flues to have terra cotta flue linings full length.

### Carpentry

All framing timbers to be carefully sorted, of equal widths, and all horizontal supports to be set with crown edge up. All timbers, joists, studs, and rafters to be of dimensions given, and to be put straight and true and secured with cut steel spikes. Exterior walls and roof to be sheathed with No. 2 shiplap, 1 x 6 in. Roof projection to be sheathed on top of rafters with No. 1 D. & M. and beaded 1 by 4 inches, laid beaded side down. Entire walls and roof to be then covered with No. 1 dimension shingles, on roof 4 inches and on walls 5 inches to the weather. All nailed with tinned nails. Exterior casings to be ⅞ to 5½ inches surfaced.

Floors throughout house to be ¾ by 4 inches D. & M., blind nailed to every joist and to be scraped at all joints.

**Trim.**—All standing trim, including doors, to be strictly first grade, of pattern selected by owner. Kitchen and bath to have ⅝ to 3½ inch chair rail. All rooms except kitchen and bath to have picture mould all round at level of crown mould of door trim.

All lumber used throughout (except frame and interior flooring) to be selected cypress, the best of the grades specified.

### Lathing and Plastering

All walls and ceilings on first storey, and walls and ceilings of finished part of second storey, to be lathed with four foot No. 1 laths. All placed horizontally. Plaster used to be prepared Adamant or Imperial hard wall plaster. To be applied in two coats and finished with sand finish.

### Plumbing, Gasfitting and Sewerage

All sewer pipe to be 6-inch vitrified clay socket end pipe. To be laid with uniform and ample pitch, in joints of cement mortar. Joints to be wiped smooth inside. Intersections to be made with long bends. Build catch basin where shown, of best sewer brick.

**Supplies.**—Connect ¾-inch pipe with main service, and run ½-inch branches to lavatory, bath and closet. All other runs to be ¾-inch. Place sill cocks at front and rear of building, as directed by owner. All underground supplies to be extra heavy lead. Above ground to be galvanized. Connections between lead and iron pipes to be made with brass ferrules and wiped joints. All wastes to be lead. Exposed plumbing to be nickel plated. Provide and place where shown on plans, the fixtures indicated. Range boiler to also have gas attachment for heating. All fixtures except closet to have both hot and cold water supply. Provide circulation pipes to maintain uniform temperature throughout the system. Soil stack to be tarred cast iron. Flash with sheet lead where same cuts through roof. All plumbing, sewerage, and gasfitting to be done in accordance with local ordinances.

Place ¾ inch fuel gas supplies where indicated, with capped basement, on bracket, 5 feet from floor.

### Electric Wiring

All work to be done in accordance with the latest rules and regulations of the local board of fire underwriters. A certificate of inspection and acceptance to be furnished the owner. Wiring at full load is not to exceed two per cent. of loss. Wiring to be encased in regulation iron conduit or circular loom. Use standard iron outlet boxes for all fixtures and switches. All switches to be of the Perkins flush type. All fixtures to be furnished by contractor. Provide front and rear door bells of differing tones, to ring in kitchen. Same to be equipped with dry batteries.

### Painting, Staining and Finishing

Shingles on roof and walls to be dipped once in creosote oil stain of color selected by owner, and to be given one brush coat after laying. All exterior trim, floors of porches to be given two coats of white lead and linseed oil colored to suit owner. Interior floors and trim to be stained and waxed. All rooms to be decorated with flat oil finish. All in colors selected by owner.

Note.—These specifications may be changed to conform with local conditions.

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## Sappy Oak

Sap oak, says the Master Builder, has suffered unjustly from abuse, and has been neglected because it has not been properly understood. The sap part of oak has been considered as inferior, and the outside or sappy boards have never been regarded with much favor.

All the same, if properly cared for from the time it is cut until it is used, sap oak will often give good results. For certain schemes of finish in cabinetwork it is really a better body to work on than heart oak. It is the same way in flooring.

If one but takes care of the sap and segregates it from the heart stock so as to get it all together for harmony in texture and color, there is a chance to do just as effective work with sap as with heart. There is no comparison of sap with heart for timbers and exposed work outside where durability is an object under the method of using the timber plain; but with the modern systems of treating wood, the sap part of oak is being made much more useful and durable even for outside work.

If sap-oak flooring is selected and laid with care, and properly stained before finishing, it will present a beautiful appearance. The same applies, but in a higher degree, to furniture and cabinet-work. The only thing necessary is to take care of the sap stock from the time it is cut until it is ready to be used.

To have the sap dominating in the particular work in which it enters, and the work carried out right, one can get new appreciation of the possibilities and beauties of sap oak. The sappy part of oak is more likely to check from the sun and wind, and therefore needs extra care.

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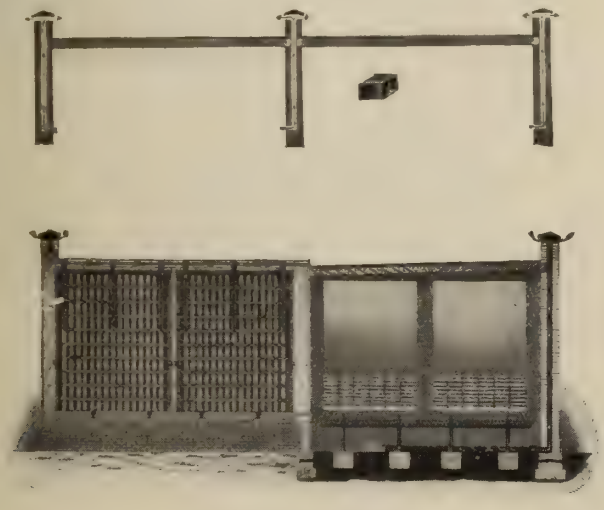
### The Morton Kiln

The increasing popularity of the Morton Moist Air Dry Kiln throughout Canada is shown by the number of sales and installations made by the Morton Dry Kiln Co. during the year to Canadian firms.

The Morton Dry Kiln Company have been manufacturing and selling kilns for over 30 years in the United States and have made installations for some of the largest woodworking concerns and saw mills from coast to coast. Last year the Morton Dry Kiln Company installed the Morton system for the United States Government.

This system of drying has a reputation in the



The Morton Kiln

United States of being one of the most simple and efficient systems of drying on the market. It embodies all the recent developments in lumber drying and is modern in every respect.

This company devotes their entire time and energy to the exclusive manufacture of lumber driers. They make the statement that in offering the Morton Moist Air system of lumber drying to Canadian trade they are in a position to quote prices delivered including payment of duties, and also when desired furnishing an expert to install the apparatus. They have made arrangements to have the largest portion of the dry kiln equipment manufactured in Canada, with the exception of a few specialties which are shipped direct from Chicago.

Under these circumstances they are in a position to quote attractive prices. Their prices include furnishing of complete blue prints and specifications and the right to use the system without extra charge. They also advise that they are in a position to make attractive propositions for remodeling old style kilns of other makes, and in many cases this can be done at very small expense, as they can make use of a great amount of the old equipment.

Anyone contemplating the erection of new dry kilns or desiring estimates on remodeling their present kilns to an up-to-date system can secure same by writing the Morton Dry Kiln Co., 20 West Jackson Blvd., Chicago, Ill.

Among some of the recent sales reported by the Morton Dry Kiln Co., of Morton kilns to Canadian firms are the following:

Brunswick Balke Collender Co., Toronto, Ont.
Gold Medal Furniture Mfg. Co., Toronto, Ont.
J. W. Kilgour & Bro., Beauharnois, Que.
Tobin Mfg. Co., Bromptonville, Que.
Eastern Townships Furniture Mfg. Co., Arthabacka, Que.
W. F. Vilas, Cowansville, Que.

The Morton Dry Kiln Co. have a complete catalogue fully describing and illustrating the Morton system which they will be pleased to send any one on request.

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### Common Oak Cellar Frames

As an incident illustrating the growing use of hardwood in planing mill work, it was noticed recently that a planing mill man was making quite a lot of oak cellar frames. He had used two-inch stock, and in running it had put some fancy beading on the edge so that it looked like a special job.

Inquiry, however, established the fact that it was not special work, but that the millman had found that he could buy common oak cheaper than some of the high-grade poplar, pine and cypress he had been using. He immediately seized upon the idea of making these cellar frames of oak. The builders like them better, and as they are ultimately covered with paint, sound knots and similar defects do not amount to anything. Oak, of course, is a stronger wood and seems to make a more durable as well as a better frame.

Of course, the demand of one planing mill using oak for this purpose is not much of an item in the trade, but if oak manufacturers could prevail upon all the planing mill men within their territory to adopt this wood in making such frames, the aggregate increase in oak consumption would be considerable. This is but a little incident showing how hardwood is winning its way into new fields right along, but nevertheless an incident indicating that its progress would be much more rapid if it were persistently and consistently pushed. In this instance it was its own booster. How much more might be accomplished if the makers of oak lumber would do more boosting in the same line.

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A dull planer knife not only uses up unnecessary power, but it bruises the wood and interferes with a smooth finish.

### The Whitney Wood Scraping Machine

There are manufacturers who chill perceptibly at the mere suggestion of discarding an old method for a new one, these men doubtless prosperous in times passed and under other conditions, carry with them a vivid recollection of the profits they have made, but, they fail to realize that concerns in their own line, whose better success is plainly evident, take more profit because they have adopted means, methods and machines that trim down and keep down cost of production to a far lower level than it is possible to be reached by less efficient equipment and inadequate methods.

There are other manufacturers, who, in the satisfaction of to-day's gain fail to take advantage of opportunity offered by improvement to augment that gain.

It is not as unusual as might be believed to find such concerns as these; they are followers, not leaders. Most of them drop into line after they perceive "the why" some of their competitors have forged ahead. Nevertheless, while they take the step that places them on equal conditions with equal chances to win, they cannot recoup themselves for the loss of profits which might have been theirs.

There is no wisdom in deferring the installation of whatever will result in progress and gain for you; look at the matter squarely, facing the proposition, balancing and weighing it, then if it scales to your favor, decide at once.

In preparing hardwood surfaces for the process of final finishing, where the element of handwork counts largely in cost, it is obvious that whatever decreases the hand work, will result in substantial saving.

The Wood Scraping Machine made by Baxter D. Whitney & Son, Winchendon, Mass., U.S.A., effects on a large scale what the cabinet maker in finishing hardwoods accomplishes with his hand scraper which is a piece of highly tempered steel with the edge ground square and straight across. This edge is whetted sharp and tuned by passing a piece of hard steel along the sharply whetted edge with sufficient pressure to cause a slight feathery edge to project about at right angles to the scraping plate. This edge does the work.

In the purpose and plan of the Whitney Patent Wood Scraping Machine, this principle has been faithfully kept in view.

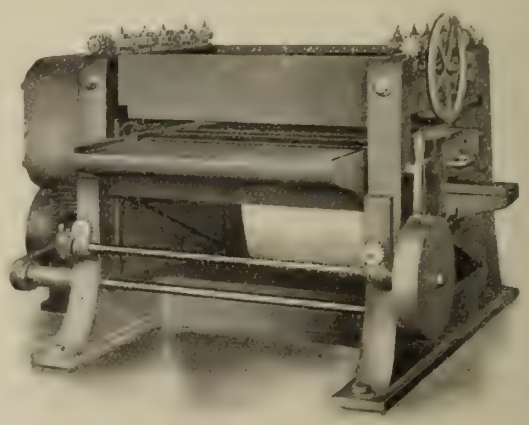
It reduces to a mechanical performance, an operation usually entrusted to workmen of skill and good judgment. It so performs its work that one of the most important and costly processes connected with fine finishing of flat hardwood surfaces, is effected perfectly and in a fraction of the time formerly expended on this part of the work.

The tuned steel blade or Scraping Knife in the Whitney Wood Scraping Machine is made in various lengths, up to 50 in. and is held stationary in a cast iron knife stock, above the surface of which it slightly projects. Over this projecting edge the work to be scraped is passed at a speed of from 80 to 120 feet per minute, resulting in the removal of a continuous shaving, which may be as thin as tissue or heavier than the thickest wrapping paper. Thus the machine does at one broad sweep what hand scraping could only accomplish by a multitude of short strokes, moreover, wood that has passed through a Wood Scraping Machine excels in beauty of appearance. The grain is brought out clearly and sharply in all its natural effect, without the least scratch or score to mar the surface, no matter what length the material passed through may be.

The Whiney Wood Scraping Machine can be used to advantage for smooth surfacing of fine hard woods of every description, no matter how hard or how curly the grain is, without leaving the bleared or smeary appearance a sander is so likely to produce, nor will a Scraper fill the parts of the wood with grit particles that prove so disastrous to hand tools used in carving and fitting.

The Scraper is not intended for use in reducing the thickness of lumber, although it will readily take off a shaving one sixty-fourth of an inch thick, but there are some kinds of wood on which it is not practical to use a Whitney Scraper. For instance, those wholly or in part of a corky or stringy nature, or such as are soft in places. Sometimes where the objectionable quality occurs only in spots, the difficulty may be overcome by taking a very thin shaving under light pressure.

The saving a Wood Scraper effects, while doing better work, will appeal to manufacturers using sanding machines. The Scraper costs for maintenance but



**Wood Scraper.**

twenty-five dollars ($25.00) a year at the most and need never be out of commission, for the substitution of re-sharpened for dull knives is but the work of a minute. This is only a fraction of the time and cost of supplying sand paper and replacing the same on a sander. Besides any workman of ordinary intelligence can operate a Whitney Scraper and produce a fine class of work, as they require much less skill than it takes to produce good work from a sander.

Moreover, the rate of feed on a Whitney Wood Scraping Machine is at least four times faster than a Sander and a Scraper will use not more than one-third the amount of power required for operating a sander.

The Single Knife Scraking Machines are made in five widths, 15 in., 26 in., 30 in., 42 in. and 50 in.—for certain work machines styled Tandem Scrapers which carry two knives and two knife stocks are made in two sizes, 15 in. and 30 in., to scrape narrow material scrapers can be equipped with Sectional Rolls and Divided Tables.

---

There are now five centres of manual training in Victoria, B.C., under the city school board, and twelve hundred boys are learning crafts in these schools.

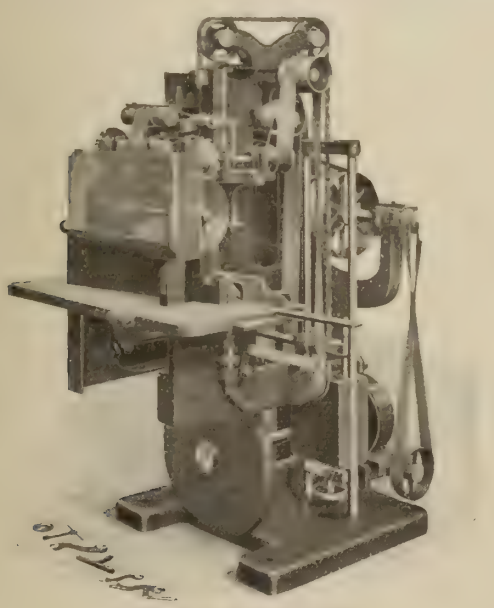
### Waterproofing a Large Veneer Room

One of the largest veneer rooms in the world is that in the basement of one of the large new concrete buildings of the Victor Talking Machine Co., Camden, N. J. This room contains thousands of dollars of valuable veneers and as it is below the water line of the Deleware River it was necessary to make it absolutely waterproof. This has been done by using five layers of Hydrex felt cemented together with Hydrex hot compound.

### End Matched Hardwood Flooring

The demand for end matched hardwood material has led to the construction of several machines for accomplishing this work, none of which however have proved to be entirely satisfactory, as they were all made upon the principle of a movable table carrying the lumber against an immovable tongue and then again an immovable grooving head. As this work has to be done very rapidly to keep pace with the modern high speed matchers, it was impossible to properly of the end matching was not absolutely square and an end match of this type is worse than none at all.

It remained for J. A. Fay & Egan Co., Cincinnati, Ohio, to bring out a machine which will overcome this difficulty and to do so, they worked out an entirtly different construction, making the table solid and cut-



Universal End Matcher

place it upon a table with the result that a great deal ting heads movable. It is known as No. 248 Universal End Matcher as shown in the accompanying illustration. It is in truth a Universal End Matcher as it will sort and butt without matching, or match without butting, or again sort, butt and match at the same time. The flooring is worked on edge making it more easily handled. It is held in position by an automatic clamp insuring perfectly square ends on each and every piece. Furthermore it eliminates the necessity of turning the flooring end for end, thereby reducing handling of the lumber. Each piece of flooring is passed from one operator to another without interfering with the work of either, thus keeping the tables clear and greatly increasing the amount of work which may be done and making it possible for the End Matcher to keep pace with the modern high speed matcher. Perfectly end matched flooring finds a ready sale at an advanced price and mills not doing any of this work at the present time, or those who have been troubled by imperfectly matched stock will undoubtedly find it to their advantage to investigate this new type of machine.

J. A. Fay & Egan Co. will be very glad to forward full information and full details and construction of this machine upon request to their main office at Cincinnati, Ohio.

### The Cost of Waterproofing Mill Floors

The cost of waterproofing a mill floor with an absolutely waterproof felt is no more than when a tar paper is used, for the reason that while two layers of a waterproof felt are sufficient, at least three layers of tar paper paper must be used. Even then the chances are that the tar paper will dry out. Three layers of tar paper are necessary because it requires two layers to seal in the middle layer, and in this way tend to preserve the middle layer.

On the other hand, two layers of a coated waterproof felt, such as Hydrex, will last indefinitely because the felt does not dry out, whereas twi layers of tar paper should not be used because it does not dry out, and the Mutual Fire Insurance people recommend, therefore, that tar paper be not used.

The cost of waterproofing a mill floor with Hydrex waterproof felt cemented together with Hydrex hot compound, runs from 4 to 4½ cents per square foot, according to the size of the job and its location. This cost of waterproofing is infinitesimal as compared to its value, especially in the event of fire when it prevents water from sprinkler and hose from reaching other floors below and damaging machinery and stock with a loss of thousands of dollars.

### Keeping Track of Mill Work

There are several different practical and workable plans for keeping track of the cost of jobs in a planing mill, even down to every detail. But there is another bit of information that none of them cover in a satisfactory manner. That is, information about where and in what shape any given job is in. Here is the proprietor of a big, busy mill, who puts in much of his time on the outside getting business. He likes to know what shape his work is in, when this job will be through, and how that one is getting along. His business is too big for him to walk out and get an idea by looking through the mill. What he would like to have is some comprehensive system of job-tracing and record-keeping, so that when he comes in at night he can glance at a certain record and tell just where his work is at and how each job is coming along. That is much more difficult than cost-keeping. If you are skeptical, just try your hand at it.

Do not take chances on a man not getting caught in an exposed belt. Fence them all in and be on the safe side.

The unguarded saw and the unguarded moment make many an accident that is long regretted after it is over. Why not think more about it beforehand?

The more thoroughly lumber is sorted as it is brought into the factory yard, the less work there is to do afterward, and the easier it is to get just what is wanted right when it is needed.

It improves a filer's qualifications to be a good sawyer, whether he practices much at it or not.

The harder a machine or a job is to master, the greater the victory when you to master it.

### Profit-Sharing Develops High Grade of Efficiency

A London cable says: The Labor Department of the Board of Trade has been investigating British profit-sharing and labor co-partnership schemes. The results are given in a volume issued by the department. More than half the abandonments of profit-sharing schemes have been due to the falling off of business, which left no profits to be shared. The experience of the firms which have tried profit-sharing is that it produces excellent results in developing a higher degree of efficiency on the part of employees, and brings about more harmonius relations between employers and employed.

### Training Head and Hands

At Lansing Michigan, as in every other American town, boys left school long before graduation. The reasons were the same everywhere—mere academic instruction no longer interested them; they wanted to get at something that would actually fit them for breadwinning, or they felt obliged to begin to earn something. At the same time, various shops in Lansing, mostly making automobiles and accessories, found difficulty in obtaining skilled mechanics having such an educational foundation as to make them available, later on, for responsible positions. The schools lacked boys to train; the shops lacked boys who were trained; so they co-operated. An arrangement has been made so that boys can both go to school and work in the shops, the boys being paired. One week the first boy of the pair goes to school, the second to the shop; next week the second boy goes to school, the first to the shop. Similar conditions at Hartford, Connecticut, have led to a co-operative arrangement between schools and shops, whereby boys can earn something, learn a trade under actual shop conditions and still receive textbook instruction.

These small but valuable experiments point in the direction we must go. The vast waste and inefficiency of the old educational system are more apparent and become more clearly understood every day. In the end we must educate boys and girls for the needs of American society as it exists to-day, and not according to purely theoretical requirements whose only validity rests upon a state of society that existed a hundred years ago when education was an aristocratic interest.

### Forests as Climate Regulators

As the forests absorb the rainfall and gradually give out the moisture thus absorbed, they prevent the humus or fertile part of the soil from being washed away; and in a great measure also prevent the occurrence of sudden rainfalls which might tear away whole mountain sides. We forget, usually, one occurrence which assists the regulative action of the forests—the fact that great quantities of water are gradually given back by them into the atmosphere by simple evaporation. The disappearance of brooks and other small streams has often been accounted for by the disturbance of the balance between evaporation and rainfall, caused by the clearing of the forests for the purpose of cultivating ordinary crops and erecting buildings.

The Revue Scientifique has some interesting statistics in this respect. It figures out that in ten hours one hectare of maize with thirty plants to the square meter will give out by evaporation 36,000 kilograms of water. Reduced to British units, this means approximately that one acre with 12,000 stalks of Indian corn will evaporate in ten hours about three and one-quarter net tons of water. One hectare of beech forest, 115 years old, exhales, according to Hoevel, about thirty gross tons of water daily; this would be about 26,500 pounds per day per acre. An oak tree with 700,000 leaves delivers to the air, by evaporation, about 138 gross tons of water in six months.

These few figures are sufficient to show what an influence the forests have in regulating the climate.

### This Man Calm on Boy Question

"Talk about luck in having office boys," said a well-known business man to a Philadelphia Record reporter, "I have hit it great. Back in 1887 I took on my first boy, and he was all that could be desired. After he had been with me for three years and began to get nearly as tall as I was he decided that he should learn a trade. Before he left he told me he had a younger brother who would like to take up the job. 'If he does as well as you did, he will be all right,' I said.

"The second brother came, and after four years service, he decided on a trade. But before he left he brought his younger brother, who took up the work. He proved as good as the first two, and when he grew too large for a $3.50 a week job he left and passed it along to the next in the family. Well, the fourth brother went to a trade and two more after him. I began to think it was going to be perpetual. Then I learned something. The boys were all used up. There were no more to come.

"While I was wondering where to get another good boy, he spoke for his nephew. 'Who is you nephew?' I said. 'John's boy,' said he. It was the son of the first boy that I had started in twenty-five years before, and he had grown up to the same age as his five uncles and his father when they began. 'Send him along,' I said. He has been with me for several months, and is as good as any of his uncles. From last reports I understand I am good for a supply of good boys for the next twenty-five years."

### Humanity in Business

Some enterprising and progressive manufacturers in the United States and Canada have found out that the introduction of humanitarian principles into the conduct of their business, costs money, but it pays. One firm of manufacturers installed a perfect system of ventilation and doubled the amount of their output, reduced the absence of their employees from sickness by one-third and turned out with 430 operatives ninety per cent. more than was done by 522 workers four years before. In another large factory in New York, where the best sanitary engineers were engaged to make the rooms healthful, similar results happened. The investment in hygienic safeguards far more than paid itself.

A foreman should study the individual ability of his men, and try to arrange his work so that each man will get the kind of work to which he is best adapted. This can best be done when the foreman gets the work long enough before he has to put it in the shop so that he may study methods as well as the man for the job. Even when a job is but a repetition of something which has been done many times before the foreman should ever think there might be a better way and not pass it over without some thought.

# Veneer Making

As compared to sawmilling there are certain divisions in veneer manufacturing that seem peculiar; they are a little difficult to account for at first and are open to some debate as to their real merits. The sawmilling industry divides itself between the conifers and what are termed the hardwoods, but not as between the producers of high-grade lumber and common stock. Each mill figures on cleaning up the tree of whatever class of timber being cut, and makes all the different grades from clear stock down. In the veneer industry, however, there is a more or less distinct dividing line between the makers of fine veneer for face work and the makers of common stock for box shooks, built-up lumber, drawer bottoms, etc. One works for quality and the other works for quantity and economy in production. Of course the plants cutting fine veneer make some common and cull stock, and have backs and fillers as well as faces, just as the mill cutting pine may cut some hardwood to clean up its stumpage, but it is an incident—the main object is the fine face stock. The other division works up some fine timber, and at times turns it into face stock, thus raising a question as to the advisability of such a division. It is seldom that face stock from a plant cutting mainly plain veneer will compare in quality with that of the plant making face stock a specialty.

One of the best practical veneer men in the country recently gave a pointed reminder of this division in the veneer industry while giving counsel to a furniture man who contemplated putting in a panel plant. He advised him to buy his face veneer from one source and his fillers and other plain stock from another. In explanation of this, he pointed out that the men making plain veneer down in the woods could supply it at a lower price than the makers of fine face veneer. The face veneer man has his machines and his men attuned to the quality idea as a dominant factor in the business; consequently it costs him more to cut the stock. Furthermore, as a rule he buys only high-grade, expensive logs for this work. And so, with unusually high prevailing log values, he is not in it when it comes to competitive prices with the man making the plain, common veneer used for box shooks and for making plain built-up panels.

This gives us a line of division in veneer making that is different from that found in sawmilling, and also distinct from the natural lines of division that come from the different methods of making veneer. Veneer is made by three general methods; rotary cutting, slicing and sawing. The sawing and slicing generally divide the work of making quartered veneer, the class that is cut for special figure, and the rotary machine is used for the plain cut veneer, both the common and the fine face stock. However, there is quite a difference in the details of operation between the plant making rotary-cut face veneer and the one making box shooks and what is termed common stock.

There is room for argument as to whether it is advisable to buy the common, cheaply cut veneer for making fillers for fine face work, rather than pay a higher price for well cut common veneer. There is also room to question the wisdom of cheap cutting instead of good cutting on the part of the maker of common veneer. He might get enough more out of the stock by taking the same pains with the cutting as the maker of face veneer to more than cover the extra cost, and might then cut a fair percentage of face stock from the cream of his timber. If in the course of time this is found to be the right idea, and there should be a general following of it, the line of division spoken of above would be wiped out. As it stands to-day, however, there is a peculiar division in the veneer making industry that is perhaps worthy of special study.

### Cones Imbedded in Tree Trunks

The clinging habit of the cones of the lodgepole pine tree in rare cases causes numbers of them to be caught by the expanding tissues, held and finally overgrown and completely buried up in the tree like a knot. The cones born during youthful years commonly are the ones caught, according to the Saturday Evening Post. These are stuck a few inches apart in two vertical opposite rows along the upper slender trunk. Each knob-like cone is held closely against the trunk by a short, strong pedicle.

One ten-foot plank from the heart of a certain large tree shows twenty-eight imbedded cones. The biography of this tree, which its scroll of annual rings told in the abstract, is of uncommon interest. The imbedded cones grew upon the sapling before it was thirty years of age and when less than twenty-five feet high. They appeared upon the slender trunk-stem before it was an inch in diameter. Twenty-siv annual wood rings formed round them to cover them from sight as completely as the seeds the cone scales clasped and concealed. The year of this completed covering, as the annual rings showed, was 1790. Then the tree was sixty-six years of age; it came into existence in 1724—and apparently from the forest history of the place, in the pathway of a fire. This lodgepole lived on through one hundred and eighty-two years. In the spring of 1906 a woodsman cut it down.

A few weeks later two-inch planks were sliced from the log of this tree in a sawmill. The fourth cut split the pith of the tree—and the startled sawyer beheld a number of imbedded cones stuck along the one-inch wood cylinder that enveloped and helped form the pithy heart of this aged pine!

### Building Wooden Cars

A recent news dispatch from Seattle, stating that 100,000,000 feet of lumber was purchased in Washington and Oregon by car companies, does not indicate that the steel car is driving wood out of car shops. The purchase of the above lumber was reported to have been made by three companies, the Canadian Car and Foundry Company, the American Car and Foundry Company, and the Pullman Company.

It is to be noted that this large purchase was made on the Pacific coast, and it consists wholly of soft woods, though the exact species are not reported.

### Liquid Glue

A liquid glue possessing great resisting power recommended for wood and iron is made as follows: Clear gelatine, 100 parts; cabinet makers' glue, 100 parts; alcohol, 25 parts; alum, 2 parts; the whole mixed with 20 parts of 20 per cent. acetic acid and heated in a water bath for six hours.

# From Coast to Coast

### Lumberman Dead

Hugh C. Thompson, a well-known lumberman, of Orillia, Ont., died at his home after two days' illness. Mr. Thompson spent his early years in Belleville, and fourteen years ago moved to Orillia. For a number of years he was with the Grand Trunk Railway and afterwards with McCormick & McLeod of Bracebridge and Playfair & White of Midland. Mr. Thompson was sixty-four years of age, and leaves his wife and two sons.

### An Oak Mine

Mines of wood are found in the south of Russia, where they were discovered very recently when the bed of a river was dragged. Not very deep in the earth, but covering an extent of 200 square kilometers, a forest of oaks was found where it had been buried by some unknown cataclysm centuries ago. The wood is in perfect preservation. The man who found the entombed forest has drawn from his mine many trunks of trees measuring from forty to sixty meters high and at least eighteen inches in diameter. The mine is worth a fortune, for the wood is the first quality, and as a result of its long rest underground it has taken the most varied colors, ranging from dark brown to pale rose, and running through all the shades of blue and yellow. One hundred and fifty thousand of the ancient oaks have been turned over to the cabinet-makers.—Harper's Weekly.

The Retail Lumbermen's Credit Association, Limited, is incorporated at Calgary with a capital of $10,000.

### Handle Factories Merge

A merger for which negotiations have been under way for some time, has finally been concluded in the formation of the Canadian Handle Manufacturers' Limited, with capital of $600,000, and headquarters at London, Ont.

The firms involved are Cameron, Dunn Manufacturing Company, Strathroy; W. C. Crawford Company, Limited, Tilbury, and the Columbia Handle and Lumber Company, London.

J. W. Cameron is president; F. G. Rumball, of London, vice-president; Jno. Stevely, London, secretary-treasurer, and W. H. Braddon, London, general superintendent.

It is proposed to acquire large tracts of timber land in the south.

### Log Scaling Fees Set Record

Breaking all previous records, the official returns of the provincial log scalers for the month of November, show that lumbering operations during the month just passed have been conducted on a scale exceeding all previous records.

The total quantity of logs scaled at the mills in the coast district amounted to 57,624,000 feet during November, a considerable increase over the figures of November, 1911, when the amount was 42,849,000.

The total receipts from royalties and other fees amounted to $48,919 in November, 1912, as compared with $43,687 in November of last year. Inspector Geo. D. McKay anticipates that there will be a very considerable financial surplus shown at the end of the year in his department as a result of the activity during the year.

### Moulding Shop Fire

The big moulding shop of the Canada Machinery Corporation branch plant at Hespeler, Ont., was burned to the ground this morning, entailing an estimated loss of $20,000, partly covered by insurance. The cause is unknown. The blaze had gained good headway when the brigade arrived and had it not been for fire doors the whole plant would probably have been destroyed.

### Lumber Famine Due to Grain Handling

W. C. Wickham, of the Puget Sound Lumber Co., of Moose Jaw, says that there has been a lumber famine in the prairie provinces for three months past and that it is due to the transportation companies using all the available rolling stock to handle the grain. For three months past no British Columbia lumber has been sold west of the mountains, but the mills there are not suffering much as they experienced good export business, his company and others having several large shipments to Australia, Hong Kong, China and Japan.

The Hub and spoke factory owned by J. S. Loughead Estate, of Sarnia, was totally destroyed by fire, with a loss of $40,000.

Victoria's building figures for the first ten months of this year show an increase of more than three million dollars over those of the corresponding period in 1911. Up to October 31 the total permits amounted to $6,564,010, while for the ten months of 1911, they were $3,167,340, or less than half. In all Canada Victoria ranks third in the value of buildings.

### Two Carpenters Injured

Harold Coppin, a carpenter, of Toronto, had his back sprained as the result of a fall from a scaffolding at the Russell Motor Company's new addition. Robert Holmes, also of Toronto, was another who had his back injured . Holmes, who is single, was doing some carpenter work at the Harris Abattoir Company, and, losing his balance, fell about fifteen feet. His injuries are not serious.

### Fatal Sawmill Accident

Three Chinamen were instantly killed and a fourth fatally injured dying an hour later, the result of an accident on Wednesday at the Harewood sawmill at Nanaimo, B.C., owned and operated by the Western Fuel Company, when several logs rolled over them from off a flat car which they were unloading. The Chinese did not follow the regular procedure but adopted one of their own.

### Sash and Door Factory for Waterloo

If the deal now pending between Waterloo and the Reitzel Bros. goes through the latter will build a $20,000 sash and door factory in that town.

# WOODWORKING MACHINERY

More than 1,000 Second-hand Machines, Renewed and Guaranteed.

52 Lines of New Machinery the Largest Stock in the World.

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*National Veneer & Lumber Co.*

Manufacturers of

## Quartered Oak Veneer

West Michigan Street and Belt Railroad,

INDIANAPOLIS, IND.

## Ohio Veneer Company

Manufacturers of

**Foreign and Domestic Hardwood Lumber and Veneers**

Importers of
Mahogany and Foreign Woods

Office and Mills:

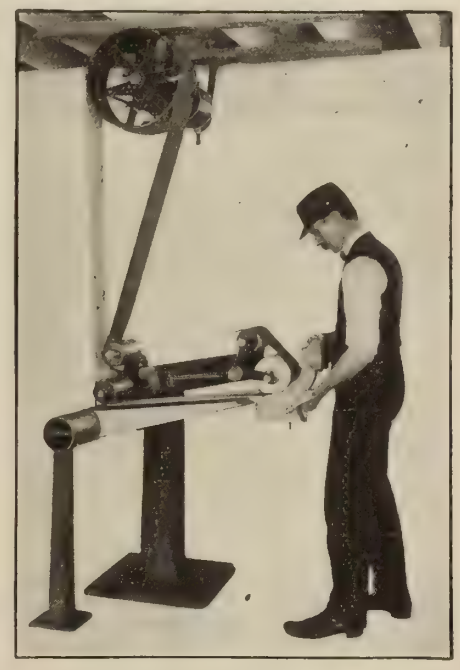
**2624 to 2634 Coleraine Ave.**

**CINCINNATI, OHIO**

## The "ROCKFORD" Belt Sander

**Good on Irregular Work**

This machine will sand all kinds of irregular work, cross veneer, O. G. moulding, claw legs and spiral veneered posts, also serpentine drawer fronts. The rollers range from 1½ to 8 inches in diameter and can be quickly placed.



The machine is easily changed from one position to another making good and rapid work possible whether crooked or straight stock.

Dust collectors are also supplied with each machine.

The "ROCKFORD" Belt Sander is the best belt sander made for use in furniture picture frame and casket factories.

**ROCKFORD TOOL CO.**

Harrison and Eleventh Sts. ROCKFORD, ILL.

For Sale by A. R. Williams Machinery Co., Toronto

# Should be Investigated

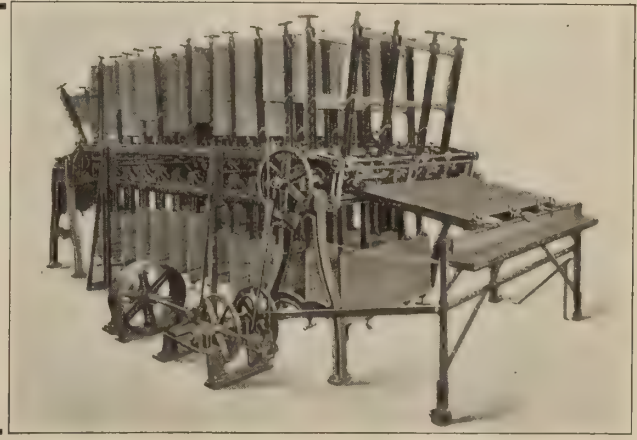
The advantages, conveniences and good points of this machine should be investigated by modern wood-working establishments.

**The Billstrom Automatic Glue Clamp Carrier**

modernizes the glue department thoroughly. The many dollars lost in the average glue room will help pay for this machine. One user said he would not be without it for many times its cost. Facts with complete particulars and description will help your investigation.

We have over 170 machines in operation.

**Nels J. Billstrom, 1315 Tenth St., Rockford, Ills.**



# OPPORTUNITIES

**Advertisements inserted on this page for "Positions Vacant" or "Positions Wanted" twenty-five cents per insertion.**

### Mountain Lumberman Loses Mill

A recent outbreak of fire at the Wattsburg Lumber Company's plant on Kootenay Lake at Proctor, near Nelson, B.C., resulted in the total destruction of the mill and upwards of 300,000 ft. of lumber lying in the yards. The loss of lumber is covered by insurance, but the mill was insured for only about one-fifth of its cost and the loss will exceed $50,000. The fire occurred in the early hours of the morning, the alarm being given by the whistles from the C.P.R. tug Valhalla, which was lying at the slip near the mill. There is reason to believe that the blaze was the work of an incendiary, as it originated in the planing mill, which is situated some distance from the boiler room. This fire destroyed the last mill in operation at Kootenay Lake. No announcement regarding the reconstruction of the plant has yet been made public.

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The large sawmill at Nanoose Bay, Vancouver Island, constructed by the United Lumber & Shingle Company, commenced cutting operations at the middle of November. The extent of its operations can be best described by stating that the mill has a capacity of 100,000 feet per day. The company has completed the construction of a logging railway through the nearby Salvation Army Colony, and a fair haul of logs is brought to the mill daily. It is quite probable that within the next few months further lines of logging railway will be built, thus enabling the company to extend the scope of the present logging operations.

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The dry kiln planned for Danville Chair & Specialty Company, Limited, Danville, Que., is to be fitted with latest improvements, 60 x 16, brick construction.

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The sawmill under contemplation for the Canadian Puget Sound Lumber Company, of Victoria, B. C., will be electrically driven. Plans will be prepared.

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The factory of the Weyburn Sash, Door & Glass Cmpany, of Weyburn, Sask., will double size of plant next year by an addition of 140 x 195 feet.

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Building permits at Winnipeg for the year 1912 are expected to reach a total of $20,000,000. The amount now wanting is little more than half a million dollars.

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E. B. Eddy Company's sawmill, Hull, has closed down for the season.

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Practically all the mill hands employed in the large sawmill of the British Canadian Lumber Corporation as Crescent Valley have dispersed for the winter. The mill will undergo the usual overhauling process in preparation for next season's work, which is expected to be heavy. The company's planing mill will be operated all winter to keep pace with the demand for finished lumber.

The Kerr & Adams Manufacturing Company has started work in their new mill at Humboldt, Sask. The company manufacture high grade mill work and interior finishing materials. The plant represents a capital outlay of $35,000, and will employ at the outset between 20 and 30 men.

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A cranky workman will destroy the peace and harmony of a whole gang, and any institution is better without such a character. Half a minute's enquiry at any industry will verify this opinion. Only a few days ago, additional help was wanted by a certain concern, and the name of available help was suggested. On hearing this, a number of the employees declared they would quit work if the person suggested were employed. This is no dream, it is an actual fact, and the objectionable workman may go on wondering why his services are so seldom required.

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## Manufacturers

**Know that good work depends to a great extent upon good workmen. If you wish to get in touch with this class of men insert your want ad. on this page—the best men in the woodworking trade read it.**

**SUPERINTENDENT WANTED**

We desire to engage a competent superintendent for our general Woodworking Factory. He must be fully capable of shouldering the responsibility of the technical management of a good-sized sash and door plant and must fully understand the wholesale production of readymade and portable houses. No "desk superintendent" wanted. The plant is just about to be erected in the Canadian Northwest. Excellent opportunity for the right man. Write stating full particulars, references, and salary expected. Correspondence treated in strict confidence.—The Great West Iron, Wood and Chemical Works, Limited, Prince Albert, Saskatchewan, Canada.

**"We offer the following machinery in good repair for sale cheap:—**

**1, 24-in. 2 Drum Fay Sander.**
**1, 6-ft. Moore Stroke Sander.**
**1, 76 x 30 Power Veneer Press.**
**Several 50 x 26 Screw Veneer Presses.**

**Apply, Hay & Company, Woodstock, Ont."**

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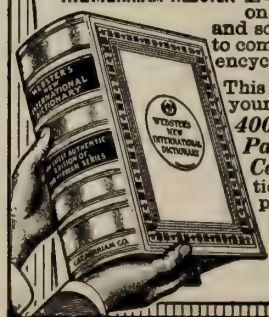

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This NEW CREATION will answer *all* your questions with *final* authority.

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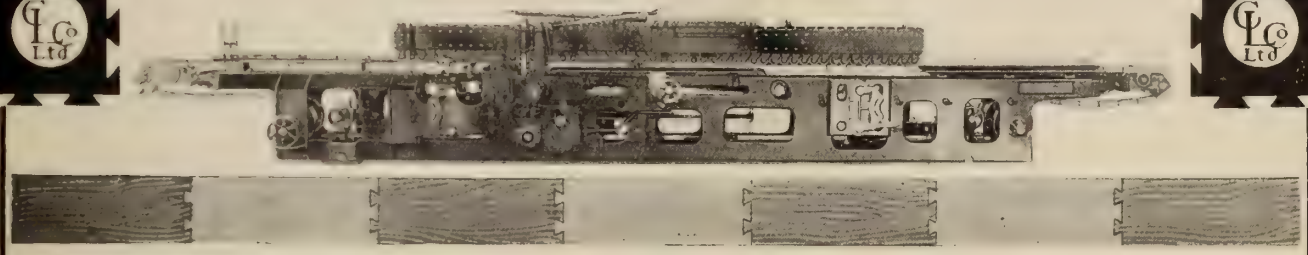

# Progressive Canadian Furniture Manufacturers

## Who will make better furniture during 1913 by using the LINDERMAN METHOD

Knechtel Furniture Co., Ltd., Hanover, Ont.
Knechtel Furniture Co., Ltd., Walkerton, Ont.
Knechtel Furniture Co., Ltd., Southampton, Ont.
Canada Furniture Mfrs., Woodstock, Ont.
Canada Furniture Mfrs., Wiarton, Ont.
Strathroy Furniture Co., Strathroy, Ont.
D. Hibner Furniture Co., Berlin, Ont.
Globe Furniture Co., Waterloo, Ont.
Canadian Office & School Furniture Co., Preston, Ont.
Toronto Furniture Co., Ltd., Toronto, Ont.
H.-E. Furniture Co., Ltd., Milverton, Ont.
Peppler Bros., Hanover, Ont.
Meaford Mfg. Co., Ltd., Meaford, Ont.
Victoriaville Furniture Co., Victoriaville, Que.
Dominion Furniture Mfg. Co., Ltd., Ste. Therese, Que.
St. Lawrence Furniture Co., Riviere-du-Loup, Que.
J. W. Kilgour & Bro., Beauharnois, Que.
Beach Furniture Co., Cornwall, Ont.
Windsor Furniture Co., Windsor, N. S.
Goderich Organ Co., Goderich, Ont.

In addition to the above, we will be glad to give you the names and addresses of twenty other Canadian concerns using the Linderman method, **all of whom** will gladly tell you about the saving they are making and the better product they are producing.

**Start the New Year aright** by bettering your product and lowering the cost of production. We will be glad to give you full information.

# Canadian Linderman Co., Ltd.

*Works at*

**Muskegon, Mich.** **Woodstock, Ont.**

### Opportunities for Foreign Trade

The following enquiries have been received from England and other countries relating to Canadian trade. The names of the firms and their addresses can be secured by interested parties by writing to the Enquiries Department, Canadian Woodworker.

Any of our readers who are answering the enquiries should not fail to forward references—particularly if bankers references.

1. **Beechwood.**—A Bristol firm wants to import quantities of Canadian beechwood for brush-making.

2. **Satin walnut, black walnut and oak furniture.**—A South African firm of commission agents desires to be placed in communication with Canadian manufacturers and exporters of satin walnut, black walnut and oak furniture, namely, bedroom suites, sideboards and tables, ready cut, planed, dovetailed, and sandpapered and shipped to Cape Town in sections ready to be put together and polished. Catalogues requested. Quotations to be c.i.f. Cape Town.

3. **Dowels.**—A Birmingham firm inquires for birch dowels, 3 ft. long, all diameters.

4. **Wooden handles.**—A Birmingham firm inquires for wooden handles for use in the manufacture of hand bowls and buckets.

5. **Wooden butter boxes.**—A South African firm of general merchants desires to be placed in communication with Canadian manufacturers and exporters of wooden butter boxes to hold 50 lbs. Catalogues, price lists and discount sheets requested. Quotations to be f.o.b. seaboard.

6. **Soft wood strips, hickory handles and birch poles.**—A Bristol firm want large quantities of soft wood strips 24 inches long x 1¼ inches by 1 inch; hickory handles all kinds; birch poles 6 feet to 7 feet long, 3 inches to 3½ inches in diameter at small end.

7. **Broom handles.**—Advertiser about to import into Belfast in large quantities broom handles made from spruce, white pine, basswood or similar wood so long as it is free from knots and white; also fork, pick, shovel and hammer shafts, would like to get into touch with shippers of same.

8. **Maplewood.**—A European firm asks for maplewood and other wood c.i.f. European or Canadian port.

9. **Picture and photo frames and artistic novelties, mouldings, etc.**—A Lincolnshire firm of designers and manufacturers of picture and photo frames, screens and artistic novelties, mouldings, etc., desires to do Canadian business.

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### Lumbering News

Satisfactory conditions generally prevailed in the lumbering industry during November. A shortage of cars was still felt, but in spite of this a large trade was done and the outlook was generally satisfactory. Shipments by rail continued heavy, and trade conditions were strong. Many men left for the lumber camps; the wages paid are about the same as last year.

According to the estimates made by lumbermen, the total log harvest in the valley of the St. John River will be 110,000,000 feet for the present manufacturing season. Over half of the timber will be manufactured in the two great mills at Van Buren and the remainder will be handled at Sa. John, Fredericton, and in the smaller mills along the river.

It is reported that the difficulty of chartering vessels has caused the shipments of lumber from New Brunswick to the United Kingdom to be considerably smaller than during the corresponding period last year. Up to September 30th the shipments of spruce from the St. John district were only 64,000,000 as against 104,000,000 for last year.

The Provincial Scaling Department of British Columbia announced that the timber scaling figures for September reached the high mark of 81,600,000 for the coast district.

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### Poles Used in Canada

The Forestry Branch of the Department of the Interior has lately finished the compilation of statistics dealing with the poles purchased in Canada during 1911. The total number of poles purchased was 585,703, a decrease of 25 per cent. from 1910. The total value of these poles at point of purchase was $1,056,277, and the average price of poles was $1.80, greater by 47 cents than the price per pole in 1910. Steam railways, telephone and telegraph companies used almost ninety per cent. of these poles, the remaining ten per cent. being used by electric railway, power and light companies. Over ninety per cent. of the total consumption were cedar poles, which for their cost give better service than any other wood. At present practically none of these poles are treated or preserved by any method, in which respect Canada is far behind the United States. The United States, using in 1910 3,870,694 poles, found that it paid them to use preservative methods. During the last four years the treatment of poles has advanced rapidly; in 1910 over 21 per cent. of the total number were treated by the creosote or other methods. This is an increase of some forty-five per cent. over the number treated in 1909. At present the United States have a large number of timber-treating plants, while Canadian pole-users in Canada may take up this cheap and rational method of securing greater service from the poles used and thus lessening the drain on the forest.

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### Creosoting Ties

The annual replacement of cros-ties in Canadian railway lines is about 10,000,000, according to statistics compiled by the Forestry Branch of the Department of the Interior. The average life of a tie, i.e., seven years, could be prolonged to seventeen years if proper preservative treatment were adopted and an annual saving of 350,000,000 feet, board measure, of timber, could be effected. This is the equivalent to three years' cut of one of the very largest mills in the country.

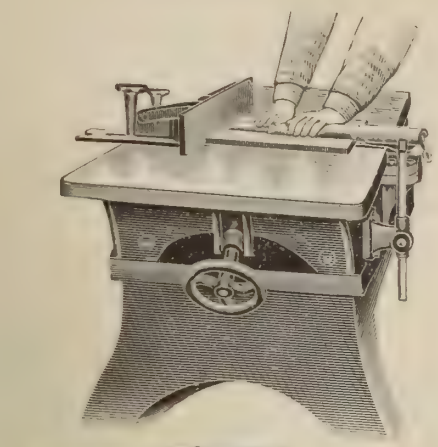
While the initial expense of creosoting would bring the cost per tie from 58 to 93 cents, it would save $1,400,000 annually.

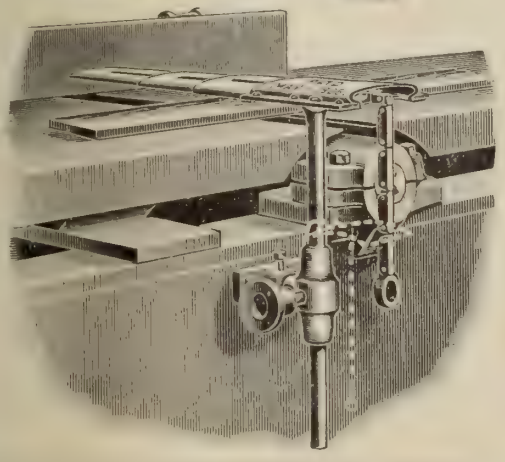
Since 1910 two timber-treating plants have been established, treating in 1911, 206,209 ties, or 15 per cent. of the total cut.

The number of ties purchased in the Dominion in 1911 was 13,683,770, an increase of 4,369,808, or 48.5 per cent. over 1910.

The rapid development of railways in the Western Provinces is largely responsible for this increase.

Eighteen kinds of wood were used. Jack pine, with forty per cent., tamarack with nineteen per cent.; Douglas fir (used to a very great extent in new electric lines in British Columbia), with 14 per cent., and hemlock, with 12 per cent. were the leaders. A remarkable decrease is that of cedar in decreasing from 40 per cent. to 5.4 per cent. of the total.





# False Economy

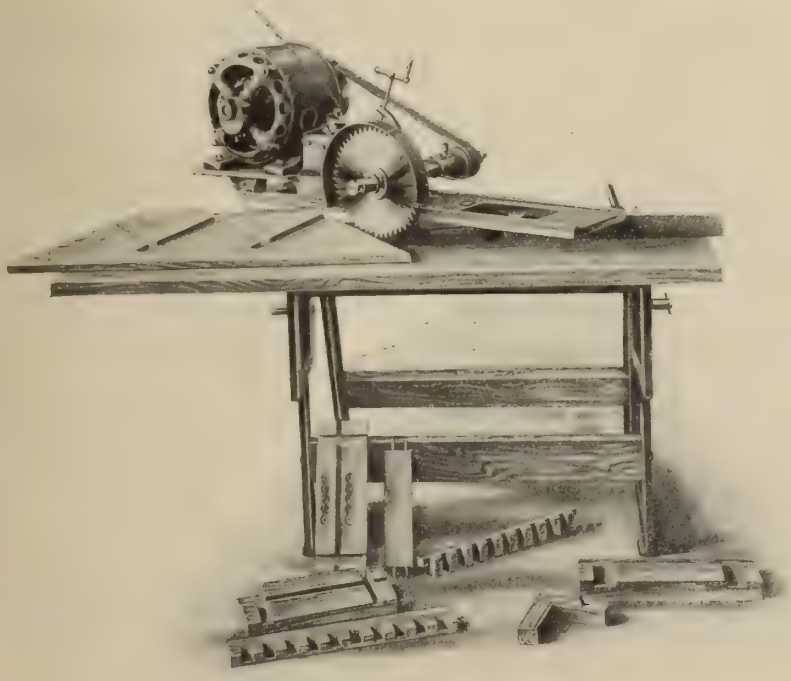
THAT only will fairly describe the policy of continuing the risk of accidents due to a neglect to furnish proper guards for Jointers, Wood Shapers, Band and Circular Saws and Stamping Presses.

Court records are constantly being made of cases where the comparatively trifling cost of these appliances are being saved only by incurring heavy damage verdicts with added law costs.

Save money by writing at once for Catalogue and information relative to Guards suited to your machines to

**The Jones Safety Device Co.**
LIMITED
**152 Dundurn St., HAMILTON, ONT.**

# THE ELLIOT WOODWORKER



Patented Canada, 1910, Patents Pending U. S.

The illustration herewith shows the Elliot Woodworker, No. 2, set for mitering, also samples of work done on the machine. For cross-cutting and mitering, housing out stair strings and other routing, it works on the principle of a swing saw, the carriage, with motor and saw, being drawn to and fro by hand. For ripping the carriage remains stationary. It is a combination of eight machines in one. With it you can rip, cross-cut, miter, rabbit, groove, plow, bore, stick mouldings, grind tools, or almost any kind of work required. It is fitted with a motor, and can be run by any house current; it can be carried from room to room, or out-doors for cutting joists, rafters, etc. One of the greatest features of the machine is the stair routing—a 16-inch stair string can be housed out in twenty minutes. You can save 30 to 40 per cent. of your labor bill by the use of this machine.

Write for particulars to

**W. A. ELLIOT**
**TORONTO, ONT.**
**Factory: Bathurst and College Sts.**
Phone Col. 1496

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Canadian Linderman Machine Co., Ltd., Woodstock, Ont.

### AUTOMATIC GLUE CLAMP CARRIER
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Canada Metal Co., Ltd., Toronto.

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Baxter D. Whitney & Son, Winchendon, Mass.
Canada Machinery Corp., Ltd., Galt, Ont.

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Shurly Dietrich Co., Ltd., Galt, Ont.
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R. H. Smith Co., Ltd., St. Catharines, Ont.

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Berlin Machine Works, Ltd., Hamilton, Ont.
Fay & Egan Co., Cincinnati, Ohio.
The A. J. Burton Saw Co., Ltd., Vancouver, B. C.
H. W. Petrie, Ltd., Toronto.

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Fay & Egan Co., Cincinnati, Ohio.

### BAND SAW STRETCHERS
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Fay & Egan Co., Cincinnati, Ohio.
The A. J. Burton Saw Co., Ltd., Vancouver, B. C.

### BENDING MACHINES
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### BELTING
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The A. J. Burton Saw Co., Ltd., Vancouver, B. C.
H. W. Petrie, Ltd., Toronto.

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### BELT FASTENERS
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### BELT DRESSING
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### BLOW PIPING
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Mussens, Limited, Montreal.
J. M. Nash, Milwaukee, Wis.
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H. W. Petrie, Limited, Toronto

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J. A. Fay & Egan Co., Cincinnati, Ohio.
The A. J. Burton Saw Co., Ltd., Vancouver, B. C.

### CLUTCHES
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### COLUMN CLAMPS
Black Bros. Machinery Co., Mendota, Ill.

### COLUMN MACHINERY
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J. A. Fay & Egan Co., Cincinnati, Ohio.
C. Mattison Machine Works, Beloit, Wis.

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E. & B. Holmes Machinery Co., Buffalo, N.Y

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Shurly Dietrich Co., Ltd., Galt, Ont.
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Berlin Machine Works, Ltd., Hamilton, Ont.
Simonds Canada Saw Co., Montreal.
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Canada Machinery Corporation, Ltd., Galt, Ont.
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E. & B. Holmes Machinery Co., Buffalo, N.Y.
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### DOVETAILING MACHINES
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### DOWEL MACHINES
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Chicago Machinery Exchange, Chicago, Ill.
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Valley City Machine Works, Grand Rapids, Mich.

### DRYING MACHINERY
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Morton Dry Kiln Co., Chicago, Ill.

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E. & B. Holmes Machinery Co., Buffalo, N.Y.
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Canada Machinery Corporation, Ltd., Galt, Ont.
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Ober Mfg. Co., Chagrin Falls, O.
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Canada Machinery Corp., Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinnati, Ohio.
Chicago Machinery Exchange, Chicago, Ill.
J. A. Fay & Egan Co., Cincinnati, Ohio.
Baxter D. Whitney & Son, Winchendon, Mass.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
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Chicago Machinery Exchange, Chicago, Ill.

**PLANES**
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Canada Machinery Corp., Ltd., Galt, Ont.

**PLANERS**
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Canada Machinery Corp., Ltd., Galt, Ont.
Chicago Machinery Exchange, Chicago, Ill.
J. A. Fay & Egan Co., Cincinnati, Ohio.
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C. Mattison Machine Works, Beloit, Wis.
Samuel J. Shimer & Sons, Milton, Pa.
Baxter D. Whitney & Son, Winchendon, Mass.
Black Bros. Machinery Co., Mendota, Ill.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie Co., Ltd., Toronto.

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J. A. Fay & Egan Co., Cincinnati, Ohio.

**RESAWS**
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Canada Machinery Corp., Ltd., Galt, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Chicago Machinery Exchange, Chicago, Ill.
Simonds Canada Saw Co., Montreal.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, Ohio.

RESAWS
H. W. Petrie, Limited, Toronto.

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Chicago Machinery Exchange, Chicago, Ill.
J. A. Fay & Egan Co., Cincinnati, Ohio.
Canada Machinery Corp., Ltd., Galt, Ont.

RIP SAWING MACHINES
Chicago Machinery Exchange, Chicago, Ill.
J. A. Fay & Egan Co., Cincinnati, Ohio.
Ober Mfg. Co., Chagrin Falls, O.
Canada Machinery Corp., Ltd., Galt, Ont.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Limited, Toronto.

SAFETY GUARDS (For Band Saw Machines, Jointers, Rip Sawing Machines, Shapers, Swing Saws, etc.)
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Fair Manufacturing Company, Racine, Wis.
Jones Safety Device Co., Hamilton, Ont.

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Chicago Machinery Exchange, Chicago, Ill.
Canada Machinery Corp., Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinnati, Ohio.
J. M. Nash, Milwaukee, Wis.
Ober Mfg. Co., Chagrin Falls, O.
Fisher Sander Co., Berlin, Ont.
Black Bros. Machinery Co., Mendota, Ill.
H. W. Petrie, Limited, Toronto.
Elliot Woodworker Co., Toronto.

SANDPAPER
Black Bros. Machinery Co., Mendota, Ill.

SANDERS (Moulding, Belt and Panel)
Black Bros. Machinery Co., Mendota, Ill.
Chicago Machinery Exchange, Chicago, Ill.
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SASH, DOOR AND BLIND MACHINERY
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J. A. Fay & Egan Co., Cincinnati, Ohio.
C. Mattison Machine Works, Beloit, Wis.
Samuel J. Shimer & Sons, Milton, Pa.
Black Bros. Machinery Co., Mendota, Ill.
H. W. Petrie, Limited, Toronto.

SAWS (Hand)
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E. C. Atkins & Co., Hamilton, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
Simonds Canada Saw Co., Montreal.
R. H. Smith Co., Ltd., St. Catharines, Ont.
J. A. Fay & Egan Co., Cincinnati, Ohio.

SAW MILL MACHINERY
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J. A. Fay & Egan Co., Cincinnati, Ohio.
H. W. Petrie, Limited, Toronto.

SAW SWAGES, AUTOMATIC FILERS
E. C. Atkins & Co., Hamilton, Ont.
Berlin Machine Works, Ltd., Hamilton, Ont.
Chicago Machinery Exchange, Chicago, Ill.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, Ohio.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.

SAW TABLES
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Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, Ohio.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Limited, Toronto.

SCRAPING MACHINES
Baxter D. Whitney & Son, Winchendon, Mass.
Chicago Machinery Exchange, Chicago, Ill.

SCROLL SAWS
Canada Machinery Corp., Ltd., Galt, Ont.
Chicago Machinery Exchange, Chicago, Ill.
Shurly Dietrich Co., Ltd., Galt, Ont.
E. C. Atkins & Co., Hamilton, Ont.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, Ohio.

SECOND HAND MACHINERY
Chicago Machinery Exchange, Chicago, Ill.
H. W. Petrie, Limited, Toronto.

SHAPERS
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corp., Ltd., Galt, Ont.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, Ohio.
Ober Mfg. Co., Chagrin Falls, O.
Samuel J. Shimer & Sons, Milton, Pa.
Baxter D. Whitney & Son, Winchendon, Mass.
H. W. Petrie, Limited, Toronto.

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Sheldons, Limited, Galt, Ont.

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Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, Ohio.
Ober Mfg. Co., Chagrin Falls, O.

STAVE SAWING MACHINE
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J. A. Fay & Egan Co., Cincinnati, Ohio.
Baxter D. Whitney & Son, Winchendon, Mass.
Chicago Machinery Exchangefi, Chicago, Ill.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Limited, Toronto.

SWING SAWS
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corp., Ltd., Galt, Ont.
Chicago Machinery Exchange, Chicago, Ill.
Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, Ohio.
Ober Mfg. Co., Chagrin Falls, O.
The A. J. Burton Saw Co., Ltd., Vancouver, B. C.
E. & B. Holmes Machinery Co., Buffalo, N.Y.
H. W. Petrie, Limited, Toronto.

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Chicago Machinery Exchange, Chicago, Ill.
Thos. White & Sons, Paisley, Scotland.
J. A. Fay & Egan Co., Cincinnati, Ohio.
C. Mattison Machine Works, Beloit, Wis.
Ober Mfg. Co., Chagrin Falls, O.
Baxter D. Whitney & Son, Winchendon, Mass.

TENONING MACHINES
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Canada Machinery Corp., Ltd., Galt, Ont.
J. A. Fay & Egan Co., Cincinnati, Ohio.
H. W. Petrie, Limited, Toronto.

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Samuel J. Shimer & Sons, Milton, Pa.

TRIMMERS
Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corp., Ltd., Galt, Ont.
Chicago Machinery Exchange, Chicago, Ill.
J. A. Fay & Egan Co., Cincinnati, Ohio.

TRUCKS
Canada Machinery Corp., Ltd., Galt, Ont.
Chicago Machinery Exchange, Chicago, Ill.
Shreldons, Limited, Galt, Ont.

TURNING MACHINES
Berlin Machine Works, Ltd., Hamilton, Ont.
J. A. Fay & Egan Co., Cincinnati, Ohio.
C. Mattison Machine Works, Beloit, Wis.
Canada Machinery Corp., Ltd., Galt, Ont.
Chicago Machinery Exchange, Chicago, Ill.
Ober Mfg. Co., Chagrin Falls, O.
Baxter D. Whitney & Son, Winchendon, Mass.
H. W. Petrie, Limited, Toronto.

UNDER-CUT SELF-FEEDING FACE PLANER
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Sheldons, Limited, Galt, Ont.

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Simonds Canada Saw Co., Montreal.
J. A. Fay & Egan Co., Cincinnati, Ohio.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
H. W. Petrie, Limited, Toronto.

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J. A. Fay & Egan Co., Cincinnati, Ohio.
The A. J. Burton Saw Co., Ltd., Vancouver, B.C.
H. W. Petrie, Limited, Toronto.

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Berlin Machine Works, Ltd., Hamilton, Ont.
Canada Machinery Corp., Ltd., Galt, Ont.
Chicago Machinery Exchange, Chicago, Ill.
J. A. Fay & Egan Co., Cincinnati, Ohio.
Ober Mfg. Co., Chagrin Falls, O.
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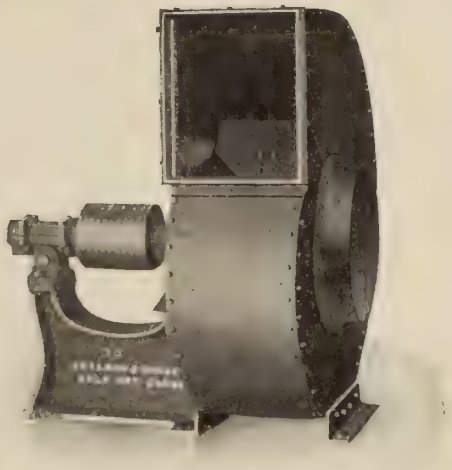

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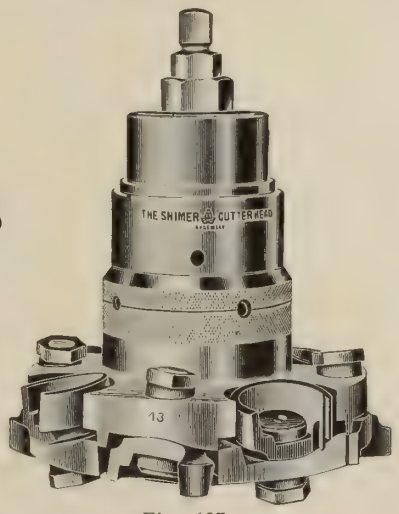


Fig. 627

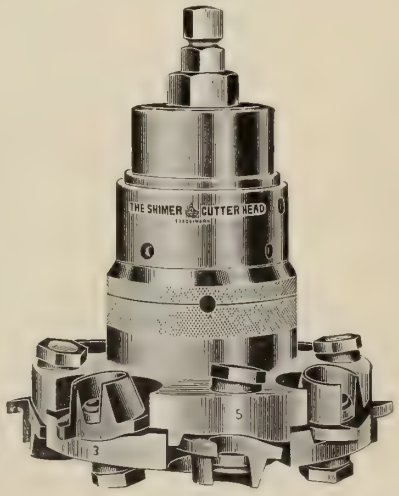


Fig. 628

**The "Shimer Limited" with Expansion, price $72.46 per set complete**

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There is nothing theoretical about them. Every advanced idea in their construction is a practical one. The experience of many years in building our older and more familiar patterns is back of every detail in their make-up.

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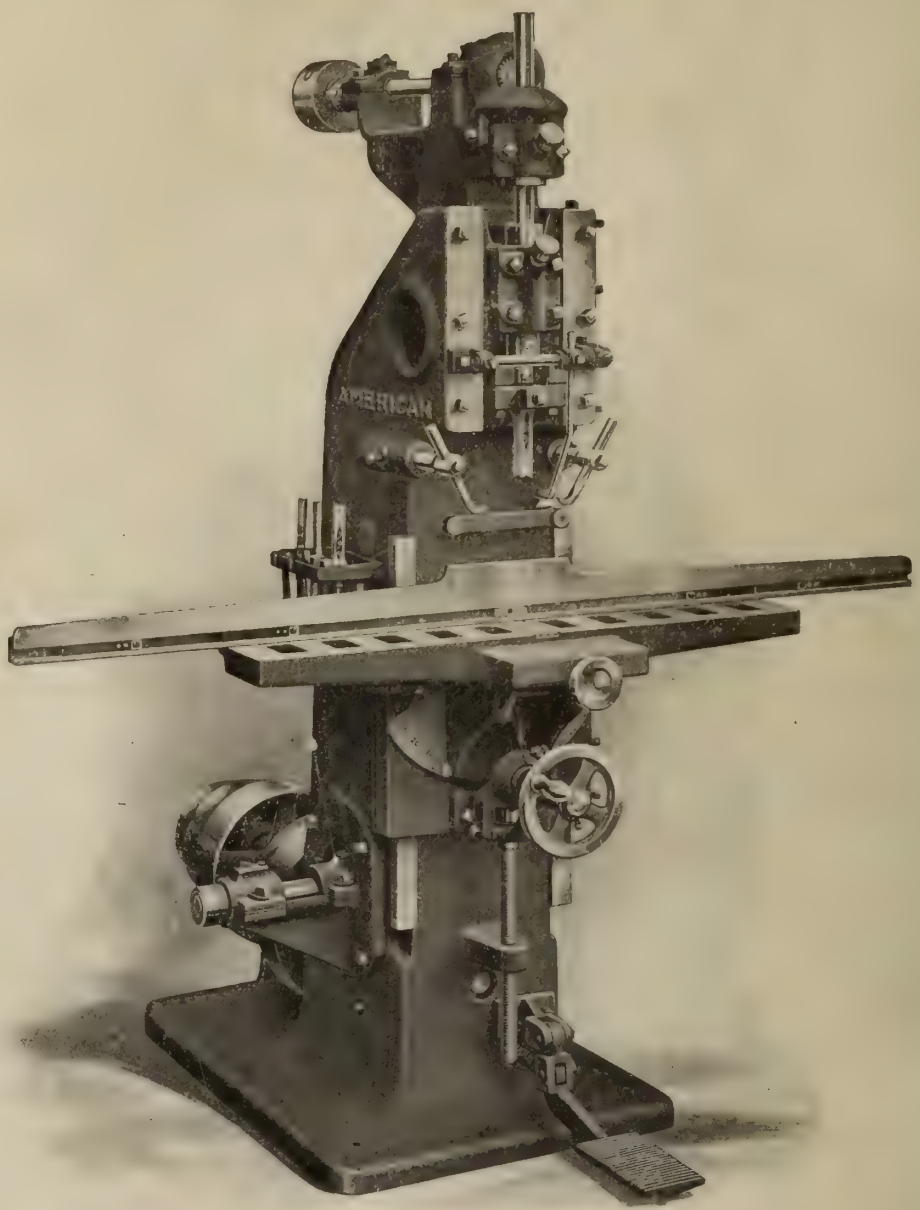


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